



CITY of PATTERSON
2010 GENERAL PLAN

DRAFT ENVIRONMENTAL IMPACT REPORT

SCH# 2010022035

July, 2010



City of Patterson

1 Plaza
P.O. Box 667
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(209) 895-8000

NOTICE OF COMPLETION/NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT

Date: July 19, 2010

TO: Responsible and Trustee Agencies and Interested Parties

FROM: The City of Patterson
Bryan Whitemyer, Interim City Manager
(209) 895-8013

SUBJECT: Notice of Completion/Notice of Availability of a Draft Environmental Impact Report – The 2010 Patterson General Plan Update
SCH# 2010022035

Notice is hereby given that a Draft Environmental Impact Report (DEIR) has been prepared for the aforementioned project in accordance with State CEQA Guidelines section 15080. The project consists of a comprehensive update of the City of Patterson General Plan. The General Plan addresses all of the sections, or elements, required by Government Code section 665302, including:

Land Use	Housing	Open Space
Circulation	Safety	
Noise	Conservation	

In addition, the Patterson General Plan addresses the following optional topics:

Public Services	Economic Development
Parks and Recreation	Air Quality and Climate Change

The General Plan Study area covers about 12,768 acres in western Stanislaus County about 20 miles southwest of Modesto adjacent to Interstate 5. The City is considering a range of project alternatives that would result in a buildout of population ranging from about 57,000 to about 75,000 by the year 2050.

The areas of potentially significant effects include:

- Land Use and Consistency With Adopted Plans
- Geology and Geologic Hazards
- Aesthetic and Visual Resources
- Air Quality and Climate Change
- Hazards and Hazardous Materials
- Traffic and Circulation
- Cultural, Paleontological and Historical Resources
- Hydrology and Water Quality
- Public Services and Facilities
- Agricultural Resources
- Biological Resources
- Noise
- Population, Housing and Employment

Copies of the Draft EIR, documents referenced in the draft EIR, and other supporting information are available at **City Hall, 1 Plaza, Patterson, CA**. Copies of the Draft EIR and General Plan are available on the City's website at www.ci.patterson.ca.us.

Sites listed in accordance with Government Code section 65962.5 are known to exist within the General Plan Study Area.

In accordance with the State CEQA Guidelines, the public comment period for this Draft EIR is 45 days starting on **July 19th, 2010 and ending on September 1, 2010 at 5PM**. The City welcomes agency and public comments on the Draft EIR during this review period.

Comments on the EIR may be submitted to:

City of Patterson
Attn: Bryan Whitemyer, Interim City Manager
1 Plaza Street
Patterson, CA 95363

Or by email to:

bwhitemyer@ci.patterson.ca.us

For questions regarding the EIR please contact:

David Moran
Crawford Multari & Clark Associates (consultants to the City)
(805) 528-7868
dave@cmcaplans.com

The City is tentatively scheduled to hold a public meeting on **Thursday, July 29, 2010, at 6:00 p.m. at City Hall, 1 Plaza Street, Patterson** to discuss the General Plan and draft EIR. All interested parties are invited to attend.

City of Patterson 2010 General Plan Update Draft Environmental Impact Report

SCH#2010022035

Prepared By:
Crawford Multari & Clark Associates

For

The City of Patterson

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1.0 INTRODUCTION

Purpose

This Draft Environmental Impact Report (Draft EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA), to evaluate the potential adverse environmental impacts that may result from adoption and implementation of the City of Patterson 2010 General Plan (Plan). Adoption or amendment of a City's General Plan is considered a "project" as defined by Section (§) 15378 of the CEQA Guidelines (Guidelines), and therefore must be evaluated for potential adverse environmental impacts. An initial environmental study was prepared (Appendix 1.0), which determined that the Plan could result in a number of potentially significant adverse environmental impacts; therefore, an EIR is required.

In accordance with §15121(a) of the Guidelines, the purpose of this Draft EIR is to serve as an informational document that:

...will inform the public agency decision-makers and the public generally of the significant environmental effects of a project, identify ways to minimize the significant effects, and describe reasonable alternatives to the project...

The EIR will enable the City Council of the City of Patterson, the public and other interested parties to consider the environmental consequences of approving and carrying out the Plan prior to taking action, and will provide a basis for the tiering of future environmental documents. The EIR may also be used by responsible and trustee agencies in issuing permits and approvals for projects proposed under the Plan, as discussed below.

Project Background

The Patterson General Plan last underwent a comprehensive revision in 1992. The 1992 Plan was intended to provide guidance for the growth and development of the City through the year 2012. Although the Plan was revised and updated in 2004, the area covered by the Plan and its vision for the future remained largely unchanged through 2007.

In 2007 the City initiated a comprehensive revision of its 1992 General Plan. The City retained a multi-disciplinary consulting team to assist the City in its general plan effort. The first step in the process was a public outreach and participation program consisting of two public workshops at which participants were asked to share their vision for the future of the City. A third workshop was conducted exclusively for teens. The input received from these workshops was used to derive a list of planning principles that were used to guide the preparation of a draft general plan.

As the foundation for policy development, the consultants subsequently prepared a detailed General Plan Background Report which provides an inventory and analysis of existing conditions and trends within Patterson and its surroundings, and provides the formal supporting documentation for general plan policy. The Background Report is discussed in greater detail in section 3.0- 3.0 Description Of Equal Weight Project Alternatives.

To help guide the formulation of a draft general plan, the City Council appointed an 11-member General Plan Advisory Committee (GPAC) representing the diverse interests of residents, property owners and other stakeholders as well as the Patterson Unified School District and the Del Puerto Health Care District. The Advisory Committee met for over a year from the summer of 2007 to the fall of 2008 to consider a diverse range of issues, and options for addressing those issues in the General Plan. The time and location of the GPAC meetings were published on the City's web site (<http://www.ci.patterson.ca.us>) along with minutes of each meeting. Issues addressed by the GPAC included:

- The appropriate locations for additional urban development beyond the 1992 General Plan;
- The timeframe to be covered and the population holding capacity of the new General Plan;
- Residential densities to be assumed for new neighborhoods, and the qualities that should be incorporated into those neighborhoods;

These issues and options were based largely on the findings of the public workshops and the Background Report. They were, however, also the result of extensive discussions among consulting team members and with City officials, other public agencies, industry groups, property owners, developers, community groups, and individual citizens. For each issue, the Advisory Committee selected one or more options, in some cases combining options and in other cases modifying the options.

Based on the Advisory Committee's direction and in cooperation with City staff, the consultants prepared the draft goals, policies, and implementation programs and land use and circulation diagrams constituting the Policy Document of the Draft General Plan. At the same time, the consulting team prepared a Draft Environmental Impact Report (EIR) to meet the requirements of the California Environmental Quality Act.

The Environmental Review Process

CEQA requires that a local agency prepare an EIR for any project it proposes to approve that may have a significant effect on the environment. The purpose of an EIR is not to recommend approval or denial of a project, but to provide decision-makers, public agencies, and the general public with objective information regarding the range of potential environmental effects that could result from a proposed action. The EIR process is specifically designed to objectively evaluate and disclose potentially significant direct, indirect, and cumulative impacts of a proposed project; to identify alternatives that could reduce or eliminate a project's significant effects while continuing to achieve the major objectives of the project; and to identify potentially feasible measures that reduce or avoid the significant effects of a project. In addition, CEQA requires that an EIR identify those adverse impacts that remain significant after mitigation.

The environmental review process as mandated by CEQA is summarized below. The steps are presented in sequential order.

Notice of Preparation

Immediately after deciding that an EIR is required, the lead agency must send a Notice of Preparation (NOP) soliciting input on the scope and content of the EIR. The NOP is sent to all "responsible," "trustee," and relevant federal agencies; to the State Clearinghouse, if one or more state agencies is a responsible or trustee agency; and to any other parties previously requesting notice in writing (State CEQA Guidelines Section 15082; Public Resources Code Section 21092.2). The NOP must also be posted in the office of the County Clerk for 30 days. The NOP was circulated for 30 days, from February 11, 2010 to March 12, 2010. During that time, comment

letters were received from agencies and members of the public. The following parties commented on the NOP (see Appendix 1.0 for NOP and comment letters):

West Stanislaus Fire Protection District
 Stanislaus Audubon Society
 California Department of Fish and Game
 California Department of Public Health
 California Department of Transportation
 Frank Clohan for Dominic Speno
 Patterson Frozen Foods
 Ron West
 Stanislaus County Environmental Review Committee
 Stanislaus County Department of Agriculture and Weights and Measures
 Stanislaus County Department of Environmental Resources
 Stanislaus Local Agency Formation Commission
 California Public Utilities Commission

The comments received did not raise any issues not already anticipated for analysis in the EIR.

Scoping Meeting

Section 15082(c) of the State CEQA Guidelines states:

(c) Meetings. In order to expedite the consultation, the lead agency, a responsible agency, a trustee agency, the Office of Planning and Research or a project applicant may request one or more meetings between representatives of the agencies involved to assist the lead agency in determining the scope and content of the environmental information that the responsible or trustee agency may require. Such meetings shall be convened by the lead agency as soon as possible, but no later than 30 days after the meetings were requested. On request, the Office of Planning and Research will assist in convening meetings that involve state agencies.

(1) For projects of statewide, regional or areawide significance pursuant to Section 15206, the lead agency shall conduct at least one scoping meeting.

A duly noticed scoping meeting was held on February 22, 2009. The scoping meeting was attended by members of the public and a representative of the Patterson Unified School District. There were no representatives of federal, State or County agencies. There were no issues raised during the meeting that expanded the scope of the EIR.

Draft Environmental Impact Report (DEIR) Prepared

The DEIR provides the public and decision-makers with the initial evaluation of potential environmental impacts of the proposed project. The DEIR must contain the following elements:

- A table of contents or index;
- A summary of the findings of the EIR;
- The project description;
- The environmental setting;
- Environmental impact analysis;
- Mitigation measures to reduce identified significant adverse impacts;
- An assessment of significant irreversible environmental changes and growth inducing impacts;

- An evaluation of cumulative impacts;
- A description of effects found not to be significant;
- A discussion of project alternatives; and
- References.

Public Notice and Review of Draft EIR

A lead agency must prepare a Public Notice of Availability of a draft EIR. The notice must be posted in the County Clerk's office for 30 days (Public Resources Code Section 21092). The lead agency must send a copy of the notice to anyone requesting it (State CEQA Guidelines Section 15087). Additionally, public notice of the availability of a DEIR must be given by at least one of the following methods: 1) publication in a newspaper of general circulation; 2) posting on and off the project site; or 3) direct mailing to owners and occupants of contiguous property. The lead agency must consult with and request comments on the DEIR from responsible and trustee agencies, and adjacent cities and counties, as applicable (Public Resources Code Sections 21104 and 21153). When a DEIR is sent to the State Clearinghouse for review, the public review period must be at least 45 days unless a shorter period is approved by the State Clearinghouse; in no case may the public review period be less than 30 days (Public Resources Code 21091). CEQA does not require public hearings on the DEIR, although in practice most agencies conduct such hearings.

Notice of Completion

A Notice of Completion (NOC) states that an EIR has been prepared for a particular project and states where the DEIR can be reviewed. The Notice of Completion is sent at the same time the Notice of Availability is issued. In addition, the lead agency must file a Notice of Completion with the State Clearinghouse as soon as it completes a DEIR.

Final EIR (FEIR)

A final EIR must include: 1) the DEIR; 2) copies of comments received during public review; 3) list of persons and entities commenting; and 4) responses to the comments.

Certification of FEIR

To approve a project for which an EIR has been prepared, the Lead Agency must make certain specific findings that 1) the FEIR has been completed in compliance with CEQA, 2) that the FEIR was presented to the decision-making body of the lead agency, 3) that the decision-making body reviewed and considered the information contained in the FEIR prior to approving a project (State CEQA Guidelines Section 15090) 4) that the conclusions of the FEIR represent the independent judgment and analysis of the lead agency, and 5) that the FEIR provides factual evidence that links the significant adverse impacts identified in the FEIR with the conclusions reached regarding their significance after mitigation.

For each significant impact identified in the FEIR, the lead agency (and responsible agencies) must find, based on substantial evidence in the record, that either 1) the project has been changed to avoid or substantially reduce the magnitude of the impact, 2) changes to the project are within another agency's jurisdiction and such changes have or should be adopted, or 3) specific legal, technological, economic social, or other considerations make the mitigation measures or project alternatives infeasible. The lead agency may approve a project for which significant and unavoidable adverse impacts have been identified in the FEIR. In such cases, findings of overriding considerations must be made by the lead agency, which state that the benefits of the project outweigh the significant unavoidable impacts.

Lead Agency Project Decision

A lead agency may: 1) disapprove a project because of its significant environmental effects; 2) require changes in a project to reduce or avoid significant environmental effects; or 3) approve a project in spite of its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (State CEQA Guidelines Sections 15041 through 15043).

Mitigation Monitoring/Reporting Program

When an agency makes findings on significant effects identified in the FEIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval (Public Resources Code Section 21081.6).

Notice of Determination

An agency may file a Notice of Determination after deciding to approve a project for which an EIR is prepared (State CEQA Guidelines Section 15094). A local agency must file the Notice with the County Clerk. The notice must be posted for 30 days and sent to anyone previously requesting such notice. Posting of the notice starts a 30-day statute of limitations on legal challenges to the adequacy of the FEIR (Public Resources Code Section 21167[c]).

Scope of Analysis

The Initial Study prepared for the Plan (and distributed with the Notice of Preparation) concluded that the project could result in potentially significant adverse impacts in the following areas:

- Land Use and Planning;
- Population, Housing and Employment
- Public Services
- Water Supply
- Wastewater
- Transportation
- Air Quality and Climate Change
- Noise
- Geology and Soils
- Biological Resources
- Agricultural Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Aesthetics and Visual Resources
- Cultural and Historic Resources

The NOP was circulated for 30 days, from February 11, 2010 to March 12, 2010. During that time, comment letters were received from agencies and members of the public. The following parties commented on the NOP (see Appendix A for NOP and comment letters):

West Stanislaus Fire Protection District
 Stanislaus Audubon Society
 California Department of Fish and Game
 California Department of Public Health
 California Department of Transportation

Frank Clohan for Dominic Speno
Patterson Frozen Foods
Ron West
Stanislaus County Environmental Review Committee
Stanislaus County Department of Agriculture and Weights and Measures
Stanislaus County Department of Environmental Resources
Stanislaus Local Agency Formation Commission
California Public Utilities Commission

The comments received did not raise any issues not already anticipated for analysis in the EIR.

A duly noticed scoping meeting was held on February 22, 2009. There were no issues raised during that meeting that expanded the scope of the EIR.

Impacts Found To Be Not Significant

According to the findings of the Initial Study for the proposed General Plan Update, released along with the Notice of Preparation on February 11, 2009 the General Plan Study Area does not have the potential to affect the availability of any state or locally designated mineral resource, and no impact was expected. As such, this EIR does not address impacts related to mineral resources.

Assumptions

The assumptions used in the topical analyses of this EIR are described in detail in section 3.0-Description of Equal-Weight Alternatives. Assumptions are provided for a range of development parameters that include:

- Residential densities for each residential land use category;
- Persons per dwelling unit;
- Future population for each Equal-Weight Alternative;
- Floor area ratios and employment associated with future non-residential development;

The analysis in each section is based on buildout of the various land uses associated with each land use alternative and within a 20-year and 40-year (buildout) growth boundary. For purposes of this analysis, the 20-Year and 40-year (buildout) Growth Boundaries refer to land within each Equal-Weight Alternative designated for development within a 20-year and a 40-year (buildout) period. The analysis assumes that development within the 20-year growth boundary will be built out by the year 2030 and that development within the 40-year boundary will be built out by 2050.

Documents Incorporated By Reference

Section 15150 of the State CEQA Guidelines permits documents of lengthy technical detail to be incorporated by reference in an EIR. Specifically, Section 15150 states that an EIR may:

“...incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public...”

Accordingly, this EIR incorporates by reference information and analyses derived from previously prepared EIRs that are relevant to the consideration of environmental effects of the

draft General Plan. In addition to materials cited, the following EIRs have been used in this EIR and are incorporated herein by reference as if set forth in the entirety:

- City of Patterson, General Plan Final Environmental Impact Report, 1992.
- West Patterson Projects Final Environmental Impact Report, October, 2002
- Patterson Wastewater Master Plan and Diablo Grande Sewer Line Final Environmental Impact Report, October, 2003
- The Villages of Patterson Final Environmental Impact Report, September, 2006
- Creekside Annexation Final Environmental Impact Report, September, 1993
- Negative Declaration for the 2010 Draft General Plan Housing Element adopted March 16, 2010

These documents are available for review at the City Planning Department, 1 Plaza, Patterson, California.

Forecasting and Specificity

The preparation of an EIR necessarily involves some degree of forecasting and speculation. The CEQA Guidelines speak to these issues as follows:

15144. Forecasting. Drafting an EIR or preparing a Negative Declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.

15145. Speculation. If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the Agency should note its conclusion and terminate discussion of the impact.

15146. Degree of Specificity. The degree of specificity required by an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR.

An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy.

An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or local general plan should focus on the secondary effects that can be expected to follow from the adoption or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow.

This EIR focuses on the impacts that could result from buildout of City of Patterson and its Study Area in accordance with the alternatives described in the Project Description (see Chapter 3 – Description of Equal-Weight Alternatives). The degree of specificity corresponds to the degree of detail contained in the project description provided by the lead agency.

Program EIR

The State CEQA Guidelines provide for a number of different types of EIRs to suit the range of projects and activities that may be considered by the Lead Agency. Based on the level of detail of

the draft Plan, this EIR has been prepared as a Program EIR, which, according to Section 15168, is appropriate when a project consists of:

...a series of actions that can be characterized as one large project and are related in one of more of the following ways:

*Geographically,
As logical parts in the chain of contemplated actions,
In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
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.*

A Program EIR is intended to provide analysis that is more general and anticipate future project refinement and review.

CEQA Guidelines Section 1516B [c] provides that subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document should be prepared. Use of the program EIR also enables the Lead Agency to characterize the overall program as the project being approved at that time. If a subsequent activity would have significant environmental effects that were not analyzed in the program EIR, an Initial Study environmental checklist would be prepared to determine if an EIR, a Negative Declaration, or an exemption would be appropriate. But if no new or substantially more severe significant environmental effects would occur (pursuant to Section 15162), the activity can be approved as being within the scope of the project covered by the program EIR, without having to prepare a new environmental document (CEQA Guidelines §15168[c]). The Lead Agency is required to incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions of the program.

Organization of the EIR

This EIR is organized to enable the Lead Agency, the public and other interested parties to understand the potential adverse environmental consequences of adopting and implementing the draft General Plan. Accordingly, the EIR is organized into ten chapters and eight appendices, as follows:

Chapter 1 – Introduction

The Introduction describes the purpose of the EIR, the scope of topics covered and how it will be used in the decision-making process.

Chapter 2 – Summary of Environmental Effects

Chapter 2 provides a summary of potential impacts, mitigation measures, and residual impacts in tabular form.

Chapter 3 – Description of Equal-Weight Project Alternatives

This chapter describes the three General Plan alternatives under consideration by the City. The Project Description also describes the assumptions and projections used to estimate future development accommodated by the draft General Plan alternatives. The resulting development

'holding capacity' quantifies the future population, dwelling units, non-residential floor area and employment that is expected during the timeframes for planning.

Chapter 4 – Introduction To Impact Analysis

Chapter 4 describes the conditions that existed at the time the Notice of Preparation was distributed, which will serve as the baseline against which the significance of environmental impacts will be assessed. As part of the baseline conditions, this chapter also summarizes the general plans of surrounding jurisdictions as well as reasonably-foreseeable regional development which may contribute to cumulative impacts along with the City's General Plan. The methodology for characterizing the impacts provided in the EIR is explained, along with the organization of the topical discussions. Chapter 4 also discusses the approach for the consideration of cumulative impacts and provides a list of other environmental documents that were used to prepare the draft EIR.

Chapter 5 – Impact Analysis

Chapter 5 contains the topical analyses for each General Plan alternative using a systematic approach and preceded by a discussion of the methodologies used to assess the significance of impacts. Each issue area is analyzed separately and the discussion is further divided into the following topics: the Environmental Setting, the Regulatory Setting, Standards of Significance, Project Impacts, General Plan Policy Response, Additional Mitigation Measures (if any), the Cumulative Setting, Impacts and General Plan Policy Response. The Setting discussions describe the existing environmental and/or regulatory conditions affecting the Study Area.

Chapter 6 – Cumulative Impacts

Chapter 6 provides a summary of cumulative impacts associated with implementation of the Equal-Weight Alternatives when added to those associated with other closely related past, present, and reasonably foreseeable future projects in the region.

Chapter 7 – Growth Inducing Impacts and Other CEQA Considerations

This chapter provides a discussion of other issues required to be considered by an EIR, including growth-inducing impacts, significant environmental changes that would occur if the project is adopted, as well as significant and unavoidable environmental effects.

Chapter 8 – Alternatives

This chapter provides a summary comparison of the environmental effects of the Equal-Weight Project Alternatives, as well as the No Project Alternative. At the end of the discussion, the EIR identifies the alternative that is "environmentally superior" for each issue area. This analysis allows the decision-makers to make an informed choice, by providing a full explanation of the environmental implications of the different options.

Chapter 9. provides a list of acronyms and abbreviations used throughout the EIR.

Chapter 10. identifies the preparers of the EIR by topic.

Lead, Responsible, and Trustee Agencies

The Guidelines distinguish among "Lead," "Responsible," and "Trustee" agencies based on their responsibilities for approving or carrying out certain aspects of a project. The City of Patterson is the Lead Agency for the project because it has the primary responsibility for approving the General Plan and subsequent projects. A "Responsible Agency" refers to an agency other than the Lead Agency that has discretionary authority to carry out or approve the project.

A "Trustee Agency" refers to a state agency having jurisdiction by law over natural resources affected by a project but without the legal authority to approve or carry out the project [Guidelines §15386]. Trustee agencies for this project include the Department of Fish and Game [Guidelines §15386].

Other Agency Approvals Required

The City Council of the City of Patterson has the sole discretionary approval authority for the General Plan. However, other agencies may have discretionary authority over subsequent projects that would be implemented under the General Plan, including the following:

Additionally, future projects would be required to comply with permitting requirements that may be instituted following approval of the General Plan, as applicable. The following paragraphs cover permits and authorizations which may potentially apply to subsequent projects.

San Joaquin Valley Unified Air Pollution Control District (SJUAPCD)

The SJUAPCD exercises permit authority to construct or obtain permits to operate certain types of equipment such as boilers.

Stanislaus Local Agency Formation Commission (LAFCO)

Stanislaus LAFCO decides the reorganization of local governments such as the annexation of territory and amendments to the City's adopted sphere of influence.

Stanislaus County

The County may issue encroachment permits for construction within County rights-of-way.

Stanislaus County Airport Land Use Commission

State law requires a local general plan to be consistent with the restrictions provided in adopted Airport Land Use Plans for airports affecting the jurisdiction's general plan.

Caltrans

The California Department of Transportation exercises approval authority for roadway improvements involving State highways.

US Army Corps of Engineers -- Section 404 Permit

Section 404 of the Clean Water Act is administered by the ACOE, and requires a permit before any excavated, dredged or fill material is discharged into wetlands or waters of the United States. Waters of the United States include Del Puerto Creek, the San Joaquin River and Salado Creek. The City must obtain a Section 404 permit if future projects associated with the General Plan require filling or developing of wetlands or waterways.

The ACOE also administers Section 10 of the Rivers and Harbors Act of 1899. Section 10 requires permit approval before any "navigable water" of the United States is obstructed or altered in any

way. Navigable waters of the United States are defined by the Army Corps of Engineers as “those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.”

Regional Water Quality Control Board (RWQCB)

Future projects associated with the General Plan may require federal permits or licenses for activities which result in discharges to water bodies. Section 401 under the Clean Water Act requires applicants to obtain State Water Quality Certification from the RWQCB that the proposed project will comply with state water quality standards.

California Water Code Section 13260 requires a report of waste discharge from any person or agency proposing to discharge waste or construct an injection well. The Regional Water Quality Control Board imposes waste discharge requirements which impose restrictions per discharge to protect the beneficial uses of water in the state.

US Fish and Wildlife Service (USFWS) -- Section 7 of the Endangered Species Act

Section 7 of the Endangered Species Act requires all Federal agencies to consult with the USFWS to ensure that their actions do not jeopardize endangered or threatened species or critical habitat. Section 7 would apply where a project would require a Section 404 permit under the Clean Water Act. In this case, the required consultation of ACOE with USFWS could result in the issuance of a biological opinion by the USFWS subsequent to consultation regarding endangered or threatened species and/or critical habitat.

Section 10 of the Endangered Species Act

Section 10 provides applicants with “incidental take permits” which allow for the unintentional “taking” (capture, seize, hunt, kill etc.) of (an) endangered or threatened species(s). A Habitat Conservation Plan (HCP) would be prepared if the City or property owner needed to receive a take permit. The HCP must demonstrate how the applicant will minimize any impact on the listed animal and mitigate any impacts that might still result from the action.

Section 106 Compliance (National Historic Preservation Act of 1966)

Section 106 of the National Historic Preservation Act seeks to afford preservation to historical and archaeological resources with respect to the needs of Federal projects. Federal agencies must consider the effects of proposed projects on cultural resources. The Advisory Council on Historic Preservation is offered a reasonable opportunity to comment with regard to proposed Federal projects. At the state level, the California Office of Historic Preservation reviews projects for compliance with Section 106 and CEQA, as well as Section 5024 of the Public Resources Code regarding historic resources on state-owned property.

Section 1602 Permit (CDFG)

The California Department of Fish and Game regulates projects that would divert or obstruct the natural flow or substantially affect resources associated with rivers, streams and lakes. Section 1602 requires public projects to obtain a Lake or Streambed Alteration Agreement from the CDFG before altering a lake or stream. This requirement may apply to projects located within the 100-year floodplain of a stream or its tributaries.

Section 2081 Compliance (CDFG)

Section 2081 of the California Endangered Species Act allows the Department to issue an incidental take permit for endangered or threatened species. Certain criteria are required to obtain an incidental take permit from the State. The take must be incidental to an otherwise

lawful activity and fully minimized and mitigated. Permits are not issued if a proposed action will jeopardize the continued existence of a listed species.

NPDES Permit (RWQCB)

The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discharge locations such as pipes or man-made ditches. Under this permit program, discharges are required to meet certain water quality standards. Stormwater systems might also require a NPDES permit in some instances. Any future discharges of pollutants from specific projects into US waters will require an NPDES permit. Projects greater than one acre must prepare a Storm Water Pollution Prevention Plan and obtain a construction permit.

Uses of this EIR

This EIR will be used by the City, the public and other interested parties to evaluate the significant environmental impacts of adopting and implementing the General Plan. Following certification, this EIR will be used to inform and focus the scope of future environmental review for future development projects, which may be tiered from this EIR, pursuant to CEQA Guidelines Section 15152. Responsible agencies will rely on this EIR for permitting or approval authority for any project-specific action to be considered as future development is proposed within the jurisdiction of the General Plan.

References

City of Patterson 1992 General Plan

CMCA, 2010 Initial Study and Noticed of Preparation for the 2010 Patterson General Plan Update Environmental Impact Report, February 11, 2010

State of California Title 14 California Code of Regulations section 15000 et seq (CEQA Guidelines)

State of California, Public Resources Code Section 22000 et seq

2.0 SUMMARY OF ENVIRONMENTAL EFFECTS

Introduction

This Environmental Impact Report (EIR) provides, to the greatest extent possible, an analysis of the potential impacts associated with implementation of the City of Patterson 2010 General Plan Update. The analysis focuses upon potential environmental impacts that could arise from implementation of the draft General Plan through development of the land uses within the General Plan Study, as regulated and guided by General Plan policies and implementation measures. To aid the public and decision-makers in understanding the findings of an EIR, the California Environmental Quality Act (CEQA) Guidelines §15123 requires that a summary be provided which discusses the significant environmental effects and mitigation measures, project alternatives, areas of controversy, and issues to be resolved.

Project Characteristics

The Patterson General Plan last underwent a comprehensive revision in 1992. The 1992 Plan was intended to provide guidance for the growth and development of the City through the year 2012. Although the Plan was revised and updated in 2004, the area covered by the Plan and its vision for the future remained largely unchanged through 2007.

In 2007 the City initiated a comprehensive revision of its 1992 General Plan. The City retained a multi-disciplinary consulting team to assist the City in its general plan effort. The first step in the process was a public outreach and participation program consisting of two public workshops at which participants were asked to share their vision for the future of the City. A third workshop was conducted exclusively for teens. The input received from these workshops was used to derive a list of planning principles that were used to guide the preparation of a draft general plan.

To help guide the formulation of a draft general plan, the City Council appointed an 11-member General Plan Advisory Committee (GPAC) representing the diverse interests of residents, property owners and other stakeholders as well as the Patterson Unified School District and the Del Puerto Health Care District. Based on the Advisory Committee's direction and in cooperation with City staff, the consultants prepared the draft goals, policies, and implementation measures and land use and circulation diagrams constituting the draft Policy Document of the Draft General Plan.

The General Plan Policy Document is divided into two main parts. The first part describes the designations appearing on the Land Use Diagram alternatives (discussed below) and outlines the standards of population density and building intensity for these land use designations as required by State law. Part I also contains a diagram depicting the proposed circulation system and a description of the street classification system.

The second part contains explicit statements of goals, policies, standards, implementation measures, and quantified objectives for each of the following general plan elements:

- Land Use
- Community Design
- Housing
- Transportation and Circulation
- Public Facilities and Services
- Economic Development

Recreational, Cultural and Historic Resources
Natural Resources (Conservation and Open Space)
Health and Safety (Noise, Safety)
Administration and Implementation.

Each section includes several goal statements relating to different sub-issues or different aspects of the issue addressed in the section. For each goal statement there are several policies which amplify the goal statement. Implementation programs are listed at the end of each section. Each program is accompanied by the actions necessary carry out the program, the agencies or departments with primary responsibility for carrying out the program, and the time frame for implementation. The housing section also includes a statement of *quantified housing objectives*.

Areas of Controversy Known to the Lead Agency

The City of Patterson was identified as the lead agency for the City of Patterson 2010 General Plan Update. In accordance with Section 15082 of the State CEQA Guidelines, the City prepared and distributed a Notice of Preparation (NOP) that was circulated for public review for 30 days, from February 11, 2010 to March 12, 2010. During that time, comment letters were received from agencies and members of the public as summarized in section 1.0.-Introduction. The NOP included a summary of probable effects on the environment from implementation of the project. Written comments received in response to the NOP were considered in the preparation of this EIR. The issues raised included rail safety, water quality and flooding issues, expansion of services to annexation areas, impacts to biological resources and habitat, and traffic and circulation impacts.

Impact Areas Found to be Less than Significant

The following impacts were found to be less than significant based on analysis included in the NOP (see Appendix 1.0) and further analysis under this EIR:

Mineral Resources. The project will have no impact on mineral resources; the Study Area does not include active or planned mineral extraction operations.

Issues to be Resolved

No known issues remain to be resolved.

Summary of Alternatives

The alternatives considered by this EIR are described briefly below. The development holding capacities of each (the population, housing and non-residential floor area accommodated by each alternative) are summarized in Table 2.0-1. The acreage designated for each land use is summarized in table 2.0-2.

The Planning Commission Environmental Review Alternative

This alternative represents the land use recommendations of the City's General Plan Advisory Committee with the following changes:

- A Mixed Use area west of I-5 has been included in the 40-year (buildout) planning growth boundary.
- A retail commercial area at the I-5/Zacharias Road has been reduced in size to about 40 acres.

Key attributes of this Plan are:

- The population holding capacity of the 20-year plan is about 64,389. The population of the 40-year plan (buildout) is about 75,863.
- New residential neighborhoods are shown to the north and west of the current City limits and south of Zacharias Road. Residential is also extended to the east to Elm Avenue.
- North of Zacharias and south of Del Puerto Creek is designated for additional industrial development, including the land surrounding the future site of Patterson High School.
- Land between the canals is designated for additional commercial development nearest the Sperry Avenue interchange along Rogers Road, and at the westerly extension of Zacharias Road where a new freeway interchange may be located.
- Between these two commercial nodes is land designated for industrial development.
- The area west of I-5 is shown with a 'Mixed Use' designation which would accommodate housing and commercial development.
- A portion of the area between Interstate 5 and the California Aqueduct is shown as industrial in the 40-year (buildout) plan.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as residential.
- The area south of Elfers Road has been designated Estate Residential with a cluster subdivision requirement.
- The resulting ratio of jobs to housing for the 20-year plan is about 1.37, and about 1.13 for the 40-year (buildout) plan. This means there would be more jobs in Patterson than dwelling units in both the 20-year and 40-year (buildout) plans, assuming all of the land designated for commercial and industrial development is consumed and deducting 30 percent to account for part-time jobs.

The Jobs Emphasis Alternative

This alternative emphasizes land uses in the 20 year growth timeframe that accommodate job generation and additional retail development which were identified as priorities by the community and the General Plan Advisory Committee. The Jobs Emphasis Alternative accommodates a 20-year and 40-year (buildout) population of 47,831 and 66,673, respectively which is closer to the amounts discussed by the Commission and Council in 2007. Under this alternative, job creation is emphasized with the designation of additional land for industrial development in the first twenty years extending west of Rogers Road north of the Patterson Business Park and between the canals. Under this alternative, the ratio of jobs to housing in the first 20-years could be as high as 1.7 jobs per dwelling unit, assuming all of the land designated for industrial and commercial development is built.

Key attributes of this alternative are:

- New residential neighborhoods are shown to the north of the Patterson Business Park and on the land north of Zacharias Road surrounding the high school site west of Highway 33 and west of the current City limits and south of Zacharias Road.
- The land west of I-5 is shown with a 'Mixed Use' designation which would accommodate housing and commercial development.
- Land between the California Aqueduct and the Delta Mendota Canal is shown as industrial in the 20-year growth boundary.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as industrial.
- The area south of Elfers Road has been designated Estate Residential.

- Also under this Plan, the areas designated for residential development to the east of the City extend to an area about mid way between Sycamore Avenue and Elm Avenue and included within the 40-year (buildout) growth boundary. The areas designated for residential development to the south of the City are included in the 40-year (buildout) growth boundary.

Compact Development Alternative

This alternative accomplishes most of the basic objectives identified for the General Plan update while minimizing the conversion of productive agricultural land and sensitive biological habitats, reduces motor vehicle use and facilities alternate forms of transportation. This alternative applies a higher average residential density (6.0 versus 4.0) to achieve a comparable level of population growth as the Jobs Emphasis Alternative, but using less land.

Key attributes of this alternative are:

- The population holding capacity of the 20-year plan is about 46,360. The population of the 40-year plan (buildout) is about 57,500.
- New residential neighborhoods are shown to the northeast of the Patterson Business Park but ending at Zacharias Road.
- Land between the canals is designated for industrial development under the 40-year (buildout) plan;
- An area of about 40 acres is designated for General Commercial development at the westerly extension of Zacharias Road and I-5.
- No land for urban development is designated west of I-5 except for five acres of Highway Serving Commercial development west of the Sperry Avenue interchange and another 15 acres west of I-5 at Zacharias Road.
- The area between Interstate 5 and the California Aqueduct is shown as agriculture.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as industrial, a continuation of the Patterson Business Park. The area on the east side of Rogers Road north of the Business Park is designated for industrial development following the property lines north to Zacharias Road.
- The area south of the City and north of Elfers Road is designated for residential development in the 40-year (buildout) Plan.
- The areas designated for future residential development do not extend beyond sycamore Avenue to the east.

Each of these alternatives was chosen to provide a range of policy choices that accomplish different General Plan objectives. The Jobs Emphasis Alternative was chosen because it emphasis achieving General Plan objectives for jobs creation, improving the ratio of jobs to housing, the provision of shopping and economic development in the first 20 years. The Compact Development Alternative provides land for additional jobs and housing to meet General Plan objectives relating to affordable housing and balancing jobs and housing while minimizing the conversion of productive agricultural land and the loss of important biological resources. The Planning Commission Environmental Review Alternative was chosen because it is the alternative that most represents the recommendations of the City's General Plan Advisory Committee.

A preferred land use alternative has not been identified for the draft General plan. Instead, the City's Planning Commission directed that each of the alternatives described above be treated equally in the analysis. Accordingly, each alternative described above is given equal weight in the analysis provided in Sections 5.1 through 5.15 of this EIR and are referred to collectively as the Equal-Weight Alternatives.

The No Project Alternative

In addition to the Equal-Weight Alternatives, this EIR considers the No Project Alternative which represents the continued development of the City in accordance with the policies, implementation measures and land uses provided in the 1992 General Plan, as amended. The Baseline Conditions that existed at the time the Notice of Preparation was distributed is described in section 4.0-Setting.

Under the No Project Alternative, the currently adopted 1992 General Plan Policy Document, Land Use and Circulation Diagrams (with amendments through 2010) would remain in effect and continue to guide the future growth and development of the City. This is considered the “No Project Alternative” as required by State CEQA Guidelines 15126.6(e)(3)(A), which specifically states that when the project under evaluation is the revision of an existing land use or regulatory plan, the “no project” alternative will be the continuation of the existing plan. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.

As shown in Table 2.0-1, the No Project Alternative would accommodate about 33,000 residents at buildout which would occur sometime during the next 20 years. In addition, the No Project Alternative would accommodate a total of 4.8 million square feet of commercial floor space and about 9.4 million square feet of industrial buildings. The potential ratio of jobs to housing at buildout would be about 1.41 if the number of jobs expected for commercial and industrial development were to be realized.

Lower Carbon Future Alternative

In September, 2009, the California Attorney General published guidelines for the analysis of potential climate change impacts in CEQA documents prepared for general plan updates. The guidelines state that a city should, if feasible, evaluate at least one alternative that would ensure that the community contributes to a “lower carbon future”. The Lower Carbon Future Alternative has not been afforded the same level of quantitative analysis as that provided for the Equal-Weight Alternative in sections 5.1 through 5.15 of this EIR. Rather, it is analyzed to the standard prescribed by CEQA Guidelines section 15126.6 and offered to provide decision-makers with an alternative that meets most of the basic objectives of the general plan update and results in lower future emissions of greenhouse gases when compared with the other project alternatives.

Table 2.0-1: Summary Development Holding Capacity of Alternatives

Attributes	No Project-Buildout of 1992 Plan	Least Carbon Future		Compact Development		Jobs Emphasis		PC Env. Review Plan	
	Total At Buildout	Total in 20 Years	Total at Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	10,345	10,950	15,153	15,153	18,992	15,711	22,151	21,687	25,589
Population	33,196	35,000	46,360	46,360	57,510	47,831	66,673	64,389	75,863
Commercial Floor Area (sq.ft.)	4,854,224	4,719,325	6,081,011	6,081,011	7,586,263	10,350,468	12,639,691	6,346,810	8,566,036
Industrial Floor Area (sq.ft.)	9,442,083	9,537,956	14,585,212	14,585,213	16,562,837	15,046,949	15,046,949	17,915,897	18,715,572
Services Floor Area (sq.ft.)	3,721,984	4,164,336	5,205,420	5,205,420	5,749,920	5,205,420	5,749,920	5,205,420	5,749,920
Jobs	14,541	17,193	21,491	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	1.41	1.13	1.42	1.42	1.34	1.69	1.30	1.19	1.13
Source: CMCA, 2009									

Acres Designated for Urban Land Uses

Table 2.0-2 provides a comparison of the acreage devoted to different land use categories under each alternative.

Table 2.0-2: Comparison of Alternatives By Land Use Category, 20- and 40-Year (Buildout) Planning Growth Boundaries Combined (Gross Acres ¹)					
Land Use Category	No Project – 1992 General Plan	Least Carbon Future	Compact Development	Jobs Emphasis	PC Env. Review Plan
Mixed-Use Hillside Development ²	0	0	0	650	650
Neighborhood Village ³	0	1,520	2,141	3,644	4,568
Estate Residential	388	0	176	1,038	1027
Low Density Residential	1684	1,303	1,303	1,303	1303
Medium Density Residential	389	369	369	369	369
High Density Residential	58	58	58	58	139
Downtown Residential	203	203	203	203	203
Downtown Core	141	69	69	69	69
Regional Commercial	0	0	0	0	0
General Commercial	136	415	481	792	487
Highway Service Commercial	91	52	70	113	113
Neighborhood Commercial	0	0	0	0	0
Medical/Professional Office	6	6	6	6	6
Light Industrial	979	1,648	1,875	1,701	2124
Heavy Industrial	223	153	153	153	153
Public/Quasi-Public ⁴	375	410	422	444	443
Parks and Recreation ⁵	258	258	258	258	258
Other ⁶	36	36	79	664	533
Total Acres:	4,967	6,503	7,664	11,465	12,446
Source: CMCA, 2009 Notes: - Gross acres refers to the total area inclusive of streets. - The Mixed-Use Hillside Development land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.4. - The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3. - Includes 145 acres associated with the wastewater treatment plant. - Does not include parkland to be dedicated in areas designated Neighborhood Village and Mixed-Use Hillside Development as required by policies LU-1.3 and LU-1.4, respectively. - Land not classified by a land use designation. Includes canals, Interstate 5 right-of-way and other land.					

Environmentally Superior Alternative

As discussed in section 8.0-Alternatives, the Lower Carbon Future Alternative is considered the environmentally superior alternative. This alternative would lessen potential impacts relating to the conversion of agricultural land and biological resources, water supply and greenhouse emissions when compared with the other alternatives, although not to a level of insignificance.

Summary of Environmental Impacts and Mitigation Measures

Table 2.0-3 provides a summary of the environmental effects associated with buildout of the General Plan, the levels of significance of adverse effects, mitigation applied to each impact—if applicable—and the residual level of significance. If an impact is determined to be significant or potentially significant after implementation of proposed policies in the draft General Plan, mitigation measures are identified, where appropriate and feasible. More than one mitigation measure may be required to reduce the impact to a less-than-significant level. This Draft MEIR assumes that all applicable plans, policies, and regulations would be implemented, including, but not necessarily limited to, proposed City General Plan policies, laws, and requirements or recommendations of the City of Patterson. Applicable plans, policies, and regulations are identified and described in the Regulatory Setting of each issue area and within the relevant impact analysis. A description of the organization of the environmental analysis, as well as key foundational assumptions regarding the approach to the analysis, is provided in section 5.0-Impact Analysis.

Impacts are categorized in the following manner:

- Significant and Unavoidable/Cumulatively Considerable
- Potentially Significant
- Less than Significant
- Beneficial

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
5.1 Land Use				
5.1-1	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could result in land use compatibility conflicts between existing and future land uses within the Study Area.	Less than significant	Mitigation Provided By Existing Regulations: The Patterson Municipal Code provides a number of performance standards aimed at minimizing land use compatibility impacts. For example, Title 6 – Health and Safety, provides standards for (among other things): Property Maintenance (6.16) Neglected Vacant Structures (6.18) Storage of Fuels – (6.24) Hazardous Materials (6.40) Noise Control (6.44) Right to Farm (6.48) In addition, the City’s Zoning Ordinance (Title 18) sets forth development and use standards for each zone which are intended to help ensure compatibility among land uses. The Ordinance establishes conditionally allowable uses for each zone that require discretionary review of new development. And lastly, the City’s Community Design Guidelines and Downtown Physical Design Plan set forth the City’s expectations for the qualities to be incorporated in new development. The Guidelines illustrate design strategies to help ensure new development complements existing development and minimizes impacts to surrounding development. Draft General Plan Policy Response: Policies: LU-1.1, LU-1.2, LU-1.13, LU-1.14, LU-1.15, LU-3.2, LU-7.2, LU-7.4, LU-9.1, CD-1.1, CD-3.2, HS-4.7, HS-4.8, HS-4.11, HS-6.4, HS-6.6, HS-6.7, NR-2.1, NR-2.2, NR-2.3, NR-2.10, PS-9.1, PS-9.5	Less than significant
5.1-2	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives are inconsistent with policies and development regulations of the Stanislaus County General Plan.	Significant and unavoidable	Mitigation Provided by Existing Regulations: The Stanislaus County General Plan contains the following policies concerning the protection of agricultural lands: Policies: 10, 14, 16 In addition, the County’s Agricultural Element contains the	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			following goals and policies; Goal 2: Preserve Our Agricultural Lands for Agricultural Uses. Policies: 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 In addition, the County General Plan contains the following policy concerning development within the unincorporated portion of a city's sphere of influence. These policies do not allow development within a City's sphere of influence to occur if it is inconsistent with a city's adopted general plan. These policies could, however, allow the County to approve development within Patterson's sphere of influence if the proposed development is consistent with the City's General Plan. Policy: 2.4 Draft General Plan Policy Response: Policies: LU-1.1, LU-1.2, LU-1.9, LU-1.13, LU-1.14, LU-1.15, LU-9.1, CD-1.7, CD-1.3, NR-2.1, NR-2.2, NR-2.3, NR-2.4, NR-2.5, NR-3.11, AI-1.1, AI-1.2, AI-1.3 Implementation Measures: LU-5, CD-1, NR-3, NR-5, AI-1	
5.1-3	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives are inconsistent with City of Patterson zoning regulations.	Less than significant	Draft General Plan Implementation Measures: LU-1	Less than significant
5.1-4	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives may be inconsistent with adopted policies, rules and procedures of the Stanislaus Local Agency Formation Commission.	Potentially significant	Mitigation provided by existing regulations: The following LAFCO policies are included in LAFCO's Policies and Procedures Manual, August 27, 2003, and are relevant to the Patterson General Plan: Policy 1 (Purpose) Policy 4 (Priorities for Annexation and Formation) Policy 20 (Logical Boundaries) Policy 21 (Development of Vacant or Underutilized Land Prior to Annexation of Additional Territory) Urban Development within a City Sphere: LAFCO takes the position that any new urban development which occurs within a city sphere of influence should take place as close to the city's urban area as possible. This position is emphasized for two reasons: First, so that contiguous areas may easily be annexed to the city; and secondly, so that the	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			new urban area can be served by reasonable extension of the city's already developed municipal services. Draft General Plan Policy Response: Policies: LU-1.1, LU-1.2, LU-1.9, LU-1.13, LU-1.14, LU-1.15, LU-9.1, CD-1.1, CD-1.7, CD-3.2, NR-2.1, NR-2.2, NR-2.3, NR-2.4, NR-2.5, NR-3.11, AI-1.1, AI-1.2, AI-1.2, AI-1.3 Implementation Measures: LU-1, LU-5, CD-1, NR-3, NR-5, AI-1.	
5.1-5	Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development will contribute to cumulative land use changes with resulting inconsistencies with adopted plans and policies. Moreover, each alternative accommodates a level of development and population that exceeds the level anticipated by adopted plans and policies. These impacts are considered potentially significant.	Cumulatively considerable	Same as above	Cumulatively considerable, and significant and unavoidable.
5.2 Population, Housing, and Employment				
5.2-1	Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Alternatives within the 20-year and 40-year (buildout) growth boundaries will result in an increase in population, housing and employment which in turn will result in direct and indirect physical impacts to the environment.	Potentially significant	Draft General Plan Policy Responses: Policies: LU-1.1, LU-1.7, LU-1.9, LU-1.10, LU-1.13, LU-1.14, ED-3.1, ED-3.2, ED-3.3 Housing Element Policies and Programs. Policies: 1-3-1, 1-3-2, 1-3-3, 1-3-4, 1-3-5, 1-3-6, 1-3-7, 1-3-8	Significant and unavoidable
5.2-2	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives each designate land for additional urban development within a 20-year and 40-year (buildout) growth boundary. Urban development accommodated by these alternatives could result in the displacement of existing dwelling units as the City expands outward. Although existing dwelling units will be displaced, they will be replaced by a substantial number of new units in a variety of densities and products.	Less than significant	No additional mitigation is required.	Less than significant
5.2-3	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development	Cumulatively considerable	Draft General Plan Policy Response: The draft policies listed under Impact 5.2-3 for Project Impacts will help mitigate regional impacts relating to population and housing.	Cumulatively considerable, and significant and unavoidable.

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	will exceed the population and employment projections used for planning purposes by regional planning agencies that include the Stanislaus Council of Governments.		However, population and employment projections shall exceed those adopted by regional planning agencies.	
5.3 Public Services and Utilities				
5.3-1	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would increase the City's population, the number of structures, and the geographic area served by the Fire Department. As the geographic area and population served by the Fire Department expands, the desired response times may not be achieved without additional fire stations and fire fighting personnel.	Potentially significant	Draft General Plan Policy Response: Policies: PS-6.1, PS-6.2, PS-6.3, PS-6.4 Implementation Measures: PS-9, PS-11, PS-13	Less than significant Cumulative impacts: Fire response times and staffing: less than cumulatively considerable. Construction of fire stations: cumulatively considerable, and significant and unavoidable.
5.3-2	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would increase the City's population, employment, the number of structures, and the geographic area served by the Police Department. As the geographic area and population served by the Police Department expands, the desired response times may not be achieved without additional police stations (or substations) and law enforcement personnel.	Potentially significant	Draft General Plan Policy Response: Policies: PS-5.1, PS-5.2, PS-5.3, PS-5.4 Implementation Measures: PS-9, PS-11, PS-12	Less than significant Cumulative impacts: Law enforcement response times and staffing: less than cumulatively considerable. Construction of law enforcement facilities: cumulatively considerable, and significant and unavoidable.
5.3-3	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will increase the City's population with a corresponding increase in the demand for parks and recreational facilities. A significant impact relating to parks could occur if developed parkland is not provided concurrently or in advance of population growth to achieve and maintain the desired ratio of 5 acres of parkland per 1,000 population.	Potentially significant	Draft General Plan Policy Response: Policies: LU-1.3, LU-1.4, PR-1.1, PR-1.2, PR-1.3, PR-1.4, PR-1.5, PR-1.6, PR-1.7, PR-1.10, PR-1.12, PR-2.1, PR-2.2, PR-2.3, PR-2.4, PR-6, PR-7, PR-8	Less than significant Cumulative impacts: Less than significant
5.3-4	The increased population accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would generate additional students with a corresponding increase in the demand for school facilities provided	Potentially significant	Draft General Plan Policy Responses: Policies: LU-1.3, LU-1.4, PS-7.1, PS-7.2, PS-7.3, PS-7.4, PS-7.5, PS-7.6, PS-7.7, PS-7.8, PS-7.9 Additional Mitigation:	Less than significant Cumulative impacts: Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	by the PJUSD.		None are available to the City	
5.3-5	The Compact Development, Jobs Emphasis or PC Environmental Review Alternatives would generate additional population and employment opportunities in Patterson within the 20-year and 40-year (buildout) growth boundaries, which in turn will increase the demand for health care facilities which in turn will require the construction of new health care facilities.	Potentially significant	Draft General Plan Policy Response: Policies: PS-8.1, PS-8.2, PS-8.3, PS-8.4, Cumulative Impacts and Mitigation Measures: The policies identified above for project impacts will help reduce cumulative impacts to health care facilities. However, the physical impacts associated with the construction of as yet undetermined health care facilities that may be needed to serve the expanded service population are unknown.	Less than significant Cumulative impacts: Cumulatively considerable, and significant and unavoidable
5.3-6	Future development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will generate additional solid waste which in turn will reduce capacity of the landfill serving the City.	Less than significant	Draft General Plan Policy Response: Policies: PS-4.1, PS-4.2, PS-4.3, PS-4.4, PS-4.5, PS-4.6, PS-4.7, PS-4.8, PS-4.9	Less than significant
5.3-7	Future development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with solid waste generated by regional development will generate additional solid waste which in turn will exceed the capacity of the landfill serving the City.	Cumulatively considerable	Assuming the same per capita rate of solid waste generation experienced in 2007, the total additional solid waste disposed of in the landfill between 2007 and 2030 would be about 4 million tons, which is less than the remaining estimated capacity of 6 million tons. However, by applying these same assumptions, the capacity of the landfill would be reached around 2039.	20-year growth boundaries: Less than cumulatively considerable 40-year (buildout) growth boundaries: Cumulatively considerable, and significant and unavoidable
5.3-8	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will accommodate additional residents and employees in Patterson which in turn will increase the demand for library services.	Less than significant	Draft General Plan Policy Response: Policies: PS-7.8	Less than significant
5.3-9	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will increase the demand for electricity and natural gas.	Less than significant	Draft General Plan Policy Response: Policies: NR-6.1, NR-6.2, NR-6.3, NR-6.4, NR-6.5, AR-6.1, AR-6.2, AR-7.3, AR-7.5, AR-7.6, AR-7.7, AR-7.8, CD-1.8 Implementation Measures: NR-8, NR-9, NR-11 Additional Mitigation: Draft General Plan Policy Response: Policies: LU-1.16	Less than significant
5.3-10	Implementation of the proposed General Plan Update, as well as potential development in the region, would result in cumulative utility service impacts.	Less than cumulatively considerable	Draft General Plan Policy Response: The draft policies and implementation measures listed above for Project Impacts will mitigate cumulative impacts relating to energy demand associated with the Equal-Weight Alternatives.	Less than cumulatively considerable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
5.3-11	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will require the construction of additional fire and police stations, parks, health care facilities, schools, and electricity, natural gas and communications lines. Construction of new and expanded public facilities could result in significant environmental impacts.	Potentially significant	Mitigation Provided by Existing Regulations: Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009). Draft General Plan Policy Response: Policies: AR-1.3, AQ-1.4, AR-5.1, NR-1.3, HS-2.9 Implementation Measures: AR-1, AR-2, PS-6, PS-7 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: AR-6, HS-10,	Significant and unavoidable
5.4 Water				
5.4-1	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives in either the 20-year or 40-year (buildout) growth boundaries will require additional water supplies beyond supplies currently available to the City.	Potentially significant	Draft General Plan Policy Response: Policies NR-1.10, PR-1.11, PS-1.1, PS-1.2, PS-1.3, PS-1.4, PS-1.5, PS-1.6, PS-1.7, PS-1.8, PS-1.9, PS-1.10, PS-1.11 Implementation Measures: NR-2, PS-1, PS-2 Additional Mitigation: Draft General Plan Policy Response: Policies: PS-1.3 Implementation Measures: NR-2, PS-15	Significant and unavoidable
5.4-2	Supplying water to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of water supply conveyance infrastructure into previously un-served areas.	Potentially significant	Mitigation Provided by Existing Regulations: Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009). Draft General Plan Policy Response: Policies: AR-1.3, AQ-1.14, AR-5.1, NR-1.3, HS-2.9 Implementation Measures: AR-1, AR-2, HS-6, PS-6, PS-7 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: PS-14, AR-6, HS-10	
5.4-3	Pumping groundwater to serve the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives for the 20-year and 40-year (buildout) growth boundaries could create one or more “cones of depression” beneath the City’s wells.	Potentially significant	Draft General Plan Policy Response: Policies: NR-1.8 Implementation Measures: PS-1 Additional Mitigation: Draft General Plan Policy Response: Policies: PS-1.12 Implementation Measures: PS-15, PS-16	Significant and unavoidable
5.4-4	Increased reliance on groundwater and surface water to serve any of the Equal-Weight Alternatives may necessitate the treatment of these water sources. The treatment of groundwater or surface water will require the disposal of concentrated brine created as a byproduct of such treatment and disposal of an additional waste product that may require special disposal methods.	Potentially significant	Draft General Plan Policy Response: Policies: PS-4.5, PS-9.4 Implementation Measures: PS-10	Less than significant
5.4-5	Implementation of any of the Equal-Weight Alternatives would result in the cumulative reduction of water available for agricultural operations in the area.	Cumulatively considerable	Draft General Plan Policy Response: The policies and implementation measures recommended by the draft Policy Document discussed under Impact 5.4-1 would help reduce cumulative impacts relating to water supply. In addition, the additional policies and implementation measures recommended under Impact 5.4-1 which call for implementation of the Water Supply Program recommended under implementation measure PS-16 and as described in Appendix 5.4 will help minimize cumulative impacts to water supply by: Developing multiple sources of water;	Cumulatively considerable, and significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			- Water conservation - Encouraging the conjunctive use of groundwater, surface water and non-potable water supplies in a manner that enhances groundwater recharge; Although the Water Supply Program recommended for the Patterson General Plan will result in a reduction of water use by properties currently served by irrigation water, the net result will be a permanent loss of irrigation water available for agricultural use.	
5.4-6	Implementation of any of the Equal-Weight Alternatives would result in the cumulative reduction of water available for all uses in the area. This impact is considered cumulatively considerable.	Cumulatively considerable	Draft General Plan Policy Response: Policies NR-1.10, PR-1.11, PS-1.1, PS-1.2, PS-1.3, PS-1.4, PS-1.5, PS-1.6, PS-1.7, PS-1.8, PS-1.9, PS-1.10, PS-1.11 Implementation Measures: NR-2, PS-1, PS-2 Additional Mitigation: Draft General Plan Policy Response: Policies: PS-1.3 Implementation Measures: NR-2, PS-15	Cumulatively considerable, and significant and unavoidable
5.5 Wastewater				
5.5-1	The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would substantially increase wastewater flows from development within both the 20-year and 40-year (buildout) growth boundaries and require additional treatment plant design capacity to accommodate anticipated demands.	Potentially significant	Draft General Plan Policy Response: Policies: PS-2.1, PS-2.2, PS-2.3, PS-2.4, PS-2.5, PS-2.7 Implementation Measures: PS-4, PS-9, PS-11 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: PS-14	Less than significant
5.5-2	The Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of wastewater collection infrastructure into previously un-served areas.	Potentially significant	Mitigation Provided by Existing Regulations: Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			(Patterson Municipal Code, 2009). Draft General Plan Policy Response: Policies: AR-1.3, AQ-1.4, AR-5.1, NR-1.3, HS-2.9 Implementation Measures: AR-1, AR-2, PS-6, PS-7 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: PS-15, AR-6, HS-10	
5.5-3	The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will require additional treatment capacity to accommodate anticipated demands that exceeds the current waste discharge volume permitted by the Regional Water Quality Control Board. A revision of the City's discharge permit is under the authority of a separate agency (the RWQCB) and therefore it cannot be guaranteed.	Potentially significant	Draft General Plan Policy Response: Policies: PS-2.3, PS-2.7 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: PS-15	Significant and unavoidable
5.5-4	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would contribute to the cumulative demand for wastewater service. However, policies recommended by draft Policy Document require that wastewater conveyance and treatment capacity be provided concurrently or in advance of development which in turn could result in physical impacts to the environment.	Less than cumulatively considerable	Draft General Plan Policy Response: The draft policies and implementation measures listed for project impacts under impacts 5.5-1, 5.5-2, 5.5-3 will mitigate cumulative impacts relating to wastewater. The cumulative impacts associated with the permanent loss of habitat for sensitive biological resources associated with the construction of disposal ponds is discussed under impacts 5.10-1 and 5.10-20 of section 5.10-Biological Resources. Project and cumulative impacts associated with the permanent loss of prime agricultural land associated with the construction of disposal ponds is discussed under impacts 5.11-2 and 5.11-5 of section 5.11-Agricultural Resources.	Less than cumulatively considerable
5.6 Transportation				
5.6-1	Development accommodated by the Compact Development alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2030 which could reduce the level of service on roadways and intersections serving the Study Area.	Potentially significant	Draft General Plan Policy Response: The Circulation Diagram (Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives. The recommended lane configurations are provided on Figure 5.6-13. In addition, the Draft Policy Document recommends the following policies and programs to directly address the potential impacts related to traffic. Policies: T-1.1, T-1.2, T-1.3, T-1.4, T-1.5, T-1.6, T-1.7, T-1.8, T-	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			1.10, T-1.13, T-1.14, T-2.1, T-2.2, T-2.3, T-3.1, T-3.2, T-3.3, T-3.4, T-5.1, T-5.2, T-7.1, T-7.3, T-7.4, T-7.5, T-6, T-7.7, T-7.8, T-7.9, T-7.10, T-7.11, AQ-1.10, AQ-1.11, AQ-1.12, AR-2.1, AR-2.2, AR-2.3, AR-2.4, AR-2.5, AR-3.1, AR-3.2, AR-3.3, AR-3.4, NR-4.3 Implementation Measures: T-2, T-3, T-4, T-5, T-6, T-7, T-11, T-12, T-13, T-14 Additional Mitigation: Draft General Plan Policy Response: The following specific roadway improvements/mitigation measures are recommended for the Compact Development 2030 growth boundary. Mitigation Measures: 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5, 5.6-7, 5.6-8, 5.6-9, 5.6-10, 5.6-11, 5.6-12, 5.6-13	
5.6-2	Development accommodated within the 20 to 40 growth limit of the Compact Development alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2050 which could reduce the level of service on roadways and intersections serving the Study Area.	Potentially significant	Draft General Plan Policy Response: Potential traffic impacts associated with urban development between 2030 and 2050 accommodated by the Compact Development Alternative will be partially mitigated by the following: ▪ Improvements recommended by the Circulation Plan; ▪ Improvements recommended by the Regional Transportation Plan; ▪ Policies and implementation measures recommended by the Draft Policy Document; ▪ Additional mitigation recommended for 2030 for the Compact Development Alternative under impact 5.6-1. Additional Mitigation: Draft General Plan Policy Response: Based on traffic monitoring, consider implementing the following roadway improvements as needed to maintain an acceptable level of service on street segments and intersections: 1. Widening Rogers Road north of Sperry Avenue to four lanes. 2. Widen Zacharias Road and Eucalyptus Avenue to four lanes, or complete the South County Corridor. 3. Widen the West Main Street bridge over the San Joaquin River to six lanes or provide a separate bridge/roadway. 4. Signalize the intersection of State Route 33 and Baldwin	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			Road. 5. Signalize the intersection of State Route 33 and Olive Avenue. 6. Widen State Route 33 to four lanes from Sperry Avenue to Rogers Road. Implementation Measures: T-18, T-19	
5.6-3	Development accommodated by the Jobs Emphasis alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2030 which could reduce the level of service on roadways and intersections serving the Study Area.	Potentially significant	Draft General Plan Policy Response: The Circulation Diagram (Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives. The recommended lane configurations are provided on Figure 5.6-16. In addition, policies and implementation measures recommended for the Compact Development Alternative listed under impact 5.6-1, above, will also apply to the Jobs Emphasis Alternative. Additional Mitigation: Draft General Plan Policy Response: The following specific roadway improvements/mitigation measures are recommended for the Jobs Emphasis 2030 timeframe. Mitigation Measures: 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5, 5.6-7, 5.6-8, 5.6-9, 5.6-10, 5.6-11, 5.6-12, 5.6-14, 5.6-15	Significant and unavoidable
5.6-4	Development accommodated within the 20 to 40 growth limit of the Jobs Emphasis Alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2050 which could reduce the level of service on roadways and intersections serving the Study Area.	Potentially significant	Draft General Plan Policy Response: Potential traffic impacts associated with urban development between 2030 and 2050 accommodated by the Jobs Emphasis Alternative will be partially mitigated by the following: - Improvements recommended by the Preliminary Circulation Plan; - Improvements recommended by the Regional Transportation Plan; - Policies and implementation measures recommended by the Draft Policy Document; - Additional mitigation recommended for 2030 for the Jobs Emphasis Alternative under impact 5.6-3. Additional Mitigation: Draft General Plan Policy Response: Mitigation Measures: 5.6-16 Implementation Measures: T-18, T-19	Significant and unavoidable
5.6-5	Development accommodated by the Planning	Potentially significant	Draft General Plan Policy Response: The Circulation Diagram	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	Commission Environmental Review alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2030 which could reduce the level of service on roadways and intersections serving the Study Area.		(Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives. The recommended land configurations are provided on Figure 5.6-18. In addition, policies and implementation measures recommended for the Compact Development Alternative listed under impact 5.6-1, above, will also apply to the Planning Commission Environmental Review Alternative. Additional Mitigation: Draft General Plan Policy Response: Mitigation Measures: 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5, 5.6-7, 5.6-8, 5.6-9, 5.6-10, 5.6-11, 5.6-12, 5.6-14, 5.6-15	
5.6-6	Development accommodated within the 20 to 40 growth limit of the Planning Commission Environmental Review alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2050 which could reduce the level of service on roadways and intersections serving the Study Area.	Potentially significant	Draft General Plan Policy Response: Potential traffic impacts associated with urban development between 2030 and 2050 accommodated by the Planning Commission Environmental Review Alternative will be partially mitigated by the following: - Improvements recommended by the Preliminary Circulation Plan; - Improvements recommended by the Regional Transportation Plan; - Policies and implementation measures recommended by the Draft Policy Document; - Additional mitigation recommended for 2030 for the Planning Commission Environmental Review Alternative under impact 5.6-4. Additional Mitigation: Draft General Plan Policy Response: Mitigation Measures: 5.6-16 Implementation Measures: T-18, T-19	Significant and unavoidable
5.6-7	Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternative in the 20-year and 40-year (buildout) timeframes will increase truck traffic through the City, which in turn could adversely impact residential neighborhoods and result in potential traffic hazards on Study Area roadways.	Potentially significant	Draft General Plan Policy Response: The Circulation Diagram (Figure 5.6-14) sets forth roadway and intersection improvements aimed at achieving and maintaining the desired level of service, and providing safe, efficient circulation through and around the City for regional traffic. More specifically, the Circulation Diagram provides for the following which will aid truck circulation: Construction of a new interchange in the vicinity of Zacharias Road and Interstate 5;	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			- Construction of the South County Corridor, an expressway providing a more direct and higher speed connecting the future interchange with the City of Turlock to the east ; - Provision of a southern by-pass to connect points east of the City with State Route 33 south of the City; - The easterly extension of Sperry Avenue to connect with E. Las Palmas Avenue to provide another east-west route between Interstate 5 and points to the east; Policies: T-1.6, T-1.7, T-1.9, T-1.10, T-1.13, T-1.14, HS-4.11, HS-4.12, HS-4.13, HS-4.14 Implementation Measures: T-2, T-3, T-4, T-11, T-12, T-13, T-14, HS-5, HS-6, HS-7, HS-8 Additional Mitigation: Draft General Plan Policy Response: In addition to the policies and implementation measures recommended by the Draft Policy Document, the truck route plan shown on Figure 5.6-19 shall be incorporated into the Circulation Element.	
5.6-8	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives would result in roadway segments and intersections located in adjacent jurisdictions that do not meet the jurisdiction's minimum acceptable level of service threshold in both the 2030 and 2050 timeframes.	Potentially significant	Draft General Plan Policy Response: Since Stanislaus County has the decision-making authority on implementing improvements to County roadways, the City of Patterson cannot guarantee implementation and/or the timing of the mitigation measures listed above for roadway outside the City.	Significant and unavoidable
5.6-9	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives during the 2030 and 2050 timeframes could result in segments of Interstate 5 that do not meet Caltrans minimum acceptable level of service threshold.	Potentially significant	Draft General Plan Policy Response: Policies: T-1.10, T-1.13, T-2.1, T-2.2, T-2.3, T-3.1, T-3.2, T-3.3, T-5.1, T-5.2, AQ-1.11, AQ-1.12, AR-2.1, AR-2.2, AR-2.3, AR-2.4, AR-2.5, AR-3.1, AR-3.2, AR-3.3, AR-3.4, NR-4.3 Implementation Measures: T-3, T-4, T-5, T-6, T-7, T-11, T-12, T-13, T-14 Additional Mitigation: The mitigation recommended by the traffic study is to add an additional lane in each direction on I-5 from north of Zacharias Avenue to south of Fink Road. However, Caltrans has the decision-making authority for the implementation of	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			improvements to the freeway segments described above, and so the City of Patterson cannot guarantee implementation and/or the timing of this mitigation measure.	
5.6-10	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives could increase the demand for transit facilities in the 20-year and 40-year (buildout) timeframes.	Potentially significant	Draft General Plan Policy Response: Policies: T-2.1, T-2.2, T-2.3, AQ-1.11, AQ-1.12, AR-3.2, AR-3.3, LU-1.1 Implementation Measures: T-13, T-14	Significant and unavoidable
5.6-11	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives could result in an impact on pedestrian facilities through the 20-year and 40-year (buildout) timeframes.	Potentially significant	Draft General Plan Policy Response: Policies: T-1.4, T-1.14, T-7.1, T-7.2, T-7.5, T-7.10, LU-1.1, AQ-1.12, AR-3.2 Implementation Measures: T-3, T-4, T-10, T-16, T-17	Significant and unavoidable
5.6-12	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives would adversely affect bicycle facilities through the 20-year and 40-year (buildout) timeframes.	Potentially significant	Draft General Plan Policy Response: Policies: T-1.4, T-1.10, T-5.1, T-5.2, T-7.1, T-7.3, T-7.4, T-5, T-7.6, T-7.7, T-7.8, T-7.9, T-7.10, LU-1.1 Implementation Measures: T-3, T-4, T-8, T-9, T-13, T-14 Additional Mitigation: Draft General Plan Policy Response: As part of the traffic analysis prepared for this EIR, a recommended bicycle circulation plan has been prepared to provide the programmatic framework from which to update the City's Bicycle Circulation Master Plan. The recommended bicycle circulation plan is provided as Figure 5.6-20.	Significant and unavoidable
5.6-13	Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review alternatives could adversely affect parking facilities in the 20-year and 40-year (buildout) timeframes.	Less than significant	Mitigation Provided by Existing Regulations: Chapter 18.72 of the Patterson Municipal Code (zoning) sets forth the City's parking standards for new development. All new development is required to comply with the off-street parking and loading requirements with respect to the number, location and size of required spaces, including spaces for the handicapped. Draft General Plan Policy Response: Policies: T-6.1, T-6.2, T-6.3, T-6.4, T-6.5, T-6.6, T-7.1, T-7.2, T-7.3, T-7.4, T-7.5, T-7.6, T-7.7, T-7.8, T-7.9, T-7.10 Implementation Measures: T-3, T-15	Less than significant
5.6-14	Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area	Potentially significant	Draft General Plan Policy Response: Policies: T-1.1, T-1.2, T-1.5, T-1.6, T-1.7, T-1.9, T-1.10, T-1.12, T-1.13, T-1.14, T-5.1, T-5.2, T-7.1, T-7.3, T-7.4, T-7.7, T-7.8, T-7.9, T-7.10 Implementation Measures: T-3, T-4, T-8, T-9, T-13, T-14 In addition, roadway and intersection improvements	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	through the 20-year and 40-year (buildout) timeframes, which in turn could increase potential traffic hazards.		recommended as mitigation for each of the Equal-Weight Alternatives as described under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6 will ensure roadways and intersections will operate at a safe and efficient level of service.	
5.6-15	The construction of roadway and intersection improvements necessary to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of roads into previously un-served areas and the widening of roads and intersections serving the Study Area.	Potentially significant	Mitigation Provided by Existing Regulations: Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009). Draft General Plan Policy Response: Policies: AR-1.3, AQ-1.14, AR-5.1, NR-1.3, HS-2.9 Implementation Measures: AR-1, AR-2, HS-6, PS-6, PS-7 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: PS-14, AR-6, HS-10	Significant and unavoidable
5.6-16	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development will result in a cumulative increase in traffic that would adversely impact the existing LOS for city roadways through the year 2050.	Cumulatively considerable	Draft General Plan Policy Response: The analysis of traffic related impacts discussed under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6 includes the cumulative growth in background traffic, plus traffic associated with each of the Equal-Weight Alternatives, plus traffic associated with the Westpark project. Accordingly, the analysis is cumulative through the year 2050. According to the preceding analysis, the Circulation Diagram, Draft Policy Document together with the recommended mitigation measures for project-related impacts will mitigate cumulative traffic-related impacts to City streets and intersections.	Cumulatively considerable, and significant and unavoidable
5.6-17	Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan	Cumulatively considerable	Draft General Plan Policy Response: As discussed under impact 5.6-8, development accommodated by each of the	Cumulatively considerable, and significant and

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	Alternatives together with regional development through 2050 will result in a cumulative increase in traffic that would adversely impact the existing LOS for roadway segments located in adjacent jurisdictions that do not meet the jurisdiction's minimum acceptable level of service threshold.		Equal-Weight Alternatives will result in adverse impacts to streets and intersections under the jurisdiction of Stanislaus County. Although the Circulation Diagram, draft Policy Document and recommended mitigation measures, when implemented, will reduce potential traffic-related impacts and achieve the County's adopted level of service, implementation of the recommended improvements is outside of the control of the City of Patterson.	unavoidable
5.6-18	Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development could result in a cumulative increase in traffic that could exceed the LOS along some segments of Interstate 5 through 2050.	Cumulatively considerable	Draft General Plan Policy Response: As discussed under impact 5.6-9, development accommodated by each of the Equal-Weight Alternatives will result in adverse impacts to Interstate 5 to the north and south of the City. As with roadways and intersections under the jurisdiction of the County, implementation of the recommended improvements is outside of the control of the City of Patterson.	Cumulatively considerable, and significant and unavoidable
5.6-19	Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development under cumulative conditions could adversely affect transit facilities through 2050.	Cumulatively considerable	Draft General Plan Policy Response: As discussed under impact 5.6-10 urban development accommodated by each of the Equal-Weight Alternatives will result in a significant increase in the City's population, which taken together with the expected growth in regional population, employment and shopping, will result in a region-wide increase in the demand for transit service. However, the policies and implementation measures recommended by the draft Policy Document and as described under impact 5.6-10 will sufficiently reduce potential impacts.	Cumulatively considerable, and significant and unavoidable
5.7 Air Quality				
5.7-1	Urban development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries may expose sensitive receptors to short-term particulate matter emissions resulting from construction activities. However, subsequent development would be subject to SJVUAPCD construction standards that address construction emissions.	Less than significant Short-term: Potentially significant	Draft General Plan Policy Response: Policies: NR-4.7, AR-5.1 Implementation Measures: AR-1, AR-2, AR-6	Less than significant
5.7-2	Buildout of the land uses accommodated by the Compact Development, Jobs Emphasis and PC Env. Review plans within both the 20-year and 40-year (buildout) growth boundaries may create objectionable odors or expose sensitive receptors to	Potentially significant	Draft General Plan Policy Response: Policies: AR-1.0, AR-1.2, AR-1.3, AQ-1.4, AQ-1.10, AR-4.1, AR-4.2 Implementation Measures: AR-1, AR-2, Additional Mitigation:	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	toxic air contaminants.		Draft General Plan Policy Response: Implantation Measures: AIR-9	
5.7-3	Operational emissions associated with development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives for both the 20-year and 40-year (buildout) growth boundaries would exceed the 10 ton per year significance threshold for ozone precursor emissions.	Potentially significant	Draft General Plan Policy Response: Policies: AR-1.0, AR-1.2, AR-1.3, AQ-1.4, AQ-1.5, AQ-1.6, AQ-1.7, AQ-1.8, AQ-1.9, AQ-1.10, AQ-1.11, AQ-1.12, AQ-1.13, AQ-1.14, AQ-1.15, AR-2.1, AR-2.2, AR-2.3, AR-2.4, AR-2.5, AR-3.1, AR-3.2, AR-3.3, AR-3.4, AR-5.2, AR-5.3, AR-6.1, AR-6.2, AR-6.3 Implementation Measures: AR-1, AR-2 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: AR-8	Significant and unavoidable
5.7-4	The Compact Development, Jobs Emphasis and PC Environmental review Alternatives would allow for population growth that will exceed projections assumed in the 2007 Extreme Ozone Attainment Demonstration Plan and potentially conflict with particulate matter reduction measures. This inconsistency could obstruct the SJVUAPCD's ozone attainment strategy and particulate matter (PM10 and PM2.5) attainment efforts.	Potentially significant	Draft General Plan Policy Response: The recommended policies and implementation measures discussed under impact 5.7-3 will help minimize air quality impacts associated buildout under each of the Equal-Weight Alternatives. However, the population accommodated by each of the Equal-Weight Alternatives for the 20-year growth boundary will exceed the population assumptions used by the Extreme Ozone Attainment Demonstration Plan.	Significant and unavoidable
5.7-5	The Compact Development, Jobs Emphasis and PC Environmental Review Alternatives would allow continued growth in population, housing, and jobs that would increase traffic volumes on local roadways. This would result in elevated CO emissions from motor vehicle congestion that could expose sensitive receptors to elevated CO concentrations.	Potentially significant	Draft General Plan Policy Response: Implementation of the measures recommended under impact 5.6-1, 5.6-3 and 5.6-5 of section 5.6 Transportation, together with the policies and implementation measures recommended under impact 5.7-3 will reduce potential CO impacts at intersections to less than significant. However, since none of the roadway or intersection improvements listed under impacts 5.6-1, 5.6-3 and 5.6-5 are fully funded and guaranteed, intersection levels of service below LOS D are possible which in turn could result in carbon monoxide hot spots.	Significant and unavoidable
5.7-6	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternative as well as the Compact Growth Alternative within the 20-year growth boundaries will result in an increase in GHG emissions over existing conditions (2009) that may exceed the 15 percent reduction target established for the year 2020.	Cumulatively considerable	Draft General Plan Policy Response: Policies: LU-1.1, LU-1.10, LU-2.3, LU-7.4, CD-1.1, CD-1.8, CD-3.2, CD-4.1, ED-1.5, ED-3.1, ED-4.2, T-2.1, T-2.2, T-2.3, T-3.1, T-3.3, T-7.1, T-7.2, T-7.3, T-7.5, T-7.6, T-7.11, NR-2.1, NR-2.2, NR-2.3, NR-2.4, NR-2.5, NR-2.6, NR-2.7, NR-2.9, NR-4.1, NR-4.2, NR-4.3, NR-5.1, NR-5.2, NR-5.3, NR-6.1, NR-6.2, NR-6.3, NR-6.4, NR-6.5, NR-6.6, PR-1.3, PR-1.14, PS-4.3, AQ-1.12, AR-2.1, AR-2.2, AR-2.3, AR-2.4, AR-2.5, AR-3.2, AR-3.3, AR-6.1, AR-6.2, AR-6.3, AR-7.1, AR-7.2, AR-7.3, AR-7.4, AR-7.5, AR-7.6, AR-7.7, AR-7.8, AR-7.9, AR-7.10, AR-7.11	Cumulatively considerable, and significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			Implementation Measures: CD-1, T-3, T-4, T-6, NR-3, NR-8, NR-9, NR-11, NR-12, NR-14, PR-6	
5.7-7	Property and persons accommodated by development associated with the Compact Development Jobs Emphasis and Planning Commission Environmental Review Alternatives within the 20-year and 40-year (buildout) growth boundaries may be subject to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts resulting from climate change.	Cumulatively considerable	Draft General Plan Policy Response: Policies: NR-1.1, NR-2.1, NR-2.4, NR-2.5, NR-2.10, NR-6.1, NR-3.2, AR-7.1, AR-7.2 Implementation Measures: NR-3, NR-8, NR-9	Cumulatively considerable, and significant and unavoidable
5.7-8	Development accommodated by the Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives together with cumulative development in the San Joaquin Valley Air Basin, would contribute to cumulative air quality impacts and could conflict with ozone and particulate matter attainment efforts.	Cumulatively considerable	The draft policies and implementation measures listed above for Project Impacts under impacts 5.7-3 and 5.7-6 will help mitigate regional air quality impacts relating to increased population and housing.	Cumulatively considerable, and significant and unavoidable
5.8 Noise				
5.8-1	Construction activities associated with urban development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives within the 20-year and 40-year (buildout) growth boundaries could result in elevated noise levels at noise-sensitive land uses. Increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption.	Potentially significant	Draft General Plan Policy Response: Policies: HS-4.9 Implementation Measures: HS-5, HS-6, HS-7 Additional Mitigation: Draft General Plan Policy Response: Implementation Measures: HS-10	Less than significant
5.8-2	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review alternatives within both the 20-year and 40-year (buildout) growth boundaries would result in increases in traffic noise levels in excess of City of Patterson noise standards.	Potentially significant	Draft General Plan Policy Response: Policies: HS-4.9, HS-4.10, HS-4.11, HS-4.12, HS-4.13, HS-4.14 Implementation Measures: HS-5, HS-6, HS-7, HS-8 Additional Mitigation: Draft General Plan Policy Response: HS-10	Significant and unavoidable
5.8-3	Development accommodated by the Compact Development, Jobs Emphasis, or PC Environmental Review Alternative within both the 20-year and 40-year (buildout) growth boundaries would expose	Potentially significant	Draft General Plan Policy Response: Policies: HS-4.9, HS-4.10, HS-4.11, HS-4.12, HS-4.13, HS-4.14 Implementation Measures: HS-5, HS-6, HS-7, HS-8	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	future land uses and residents to increased train and rail related noise.			
5.8-4	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives within both the 20-year and 40-year (buildout) growth boundaries could be exposed to aircraft related noise.	Less than significant	Draft General Plan Policy Response: Policies: LU-9.1, LU-9.2	Less than significant
5.8-5	As additional development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives occurs throughout the Study Area within both the 20-year and 40-year (buildout) growth boundaries, the potential exists for new noise-sensitive land uses to encroach upon existing or proposed stationary noise sources.	Potentially significant	Draft General Plan Policy Response: Policies: HS-4.7, HS-4.8, HS-4.9, HS-4.10, HS-4.11	Significant and unavoidable
5.8-6	Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives within the 20-year and 40-year (buildout) growth boundaries could be exposed to groundborne vibration impacts.	Less than significant	Mitigation Provided by Existing Regulations: Chapter 6.44 of the City's Municipal Code restricts construction activities to between the hours of 6:00 a.m. and 8:00 p.m.	Less than significant
5.8-7	Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review alternatives within the 20-year or 40-year (buildout) growth boundaries along with development in the region will result in increased noise conflicts.	Cumulatively considerable.	Draft General Plan Policy Response: The draft policies listed above for Project Impacts will help mitigate regional impacts relating to noise from transportation and stationary sources.	Cumulatively considerable, and significant and unavoidable
5.9 Geology and Soils				
5.9-1	Implementation of the Compact Development, Jobs Emphasis or PC Env. Review Plan, and the resulting increase in population, employment, and development activity within the Study Area, would expose people, structures, and development to ground shaking and seismic hazards as a consequence of earthquakes that could result in the risk of loss, injury, or death.	Potentially significant	Draft General Plan Policy Response: Policies: LU-1.14, HS-1.1, HS-1.2 Implementation Measures: HS-A	Less than significant
5.9-2	Adoption and implementation of the Jobs Emphasis or PC Env. Review alternatives will result in urban development in the foothills of the Diablo Range which is known to contain areas of geologic	Potentially significant	Draft General Plan Policy Response: Policies: LU-1.14, HS-1.1, HS-1.2 Implementation Measures: HS-A	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	instability.			
5.9-3	Implementation of the Compact Development, Jobs Emphasis or PC Env. Review Plan will accommodate subsequent development activities that may include construction and site preparation activities such a grading and excavation. These activities can increase the potential for soil, wind, and water erosion, due to minor or major grading over large areas of land.	Potentially significant	Draft General Plan Policy Response: Policies: NR-1.2, NR-1.3, NR-1.4, NR-1.5, NR-2.11	Less than significant
5.9-4	Urban development accommodated by the Compact Development, Jobs Emphasis or PC Env. Review Plan could place development in areas with unstable soils or expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soils.	Potentially significant	Draft General Plan Policy Response: Policies: LU-1.14, HS-1.1, HS-1.2 Implementation Measures: HS-A	Less than significant
5.9-5	New roadway and/or pedestrian bridges may be required over Diablo Creek, Salado Creek, the Delta Mendota Canal, California Aqueduct, and/or the San Joaquin River. The construction of new bridges may result in significant grading, excavation, fill, and boring activities which in turn could result in unstable cut and fill slopes, the placement of structures on expansive soils, and the potential for increased erosion.	Potentially significant	Draft General Plan Policy Response: Policies: HS-1.1 Implementation Measures: HS-A	Less than significant
5.9-6	Implementation of any of the Equal-Weight General Plan alternatives, in combination with existing, planned, proposed, and reasonably foreseeable development, would not contribute to cumulative seismic hazards, expansive soils, and soil erosion impacts given the area-specific nature of the impact.	Less than cumulatively considerable	Draft General Plan Policy Response: Compliance with the City's NPDES permit would reduce the City's contribution to cumulative soil erosion impacts. Development projects are analyzed on an individual basis and must comply with established requirements of the City, the California Environmental Quality Act (CEQA) and the UBC as they pertain to protection against known geologic hazards and potential geologic and expansive soil related impacts. There are no known active faults in the Study Area, there is a low incidence of historical geologic activity in the vicinity, and there is no contribution with other regional geologic impacts.	Less than cumulatively considerable
5.10 Biological Resources				
5.10-1	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries will result in	Less than significant	Draft General Plan Policy Response: Development within Study Area would result in the permanent loss of approximately 15.23 acres of exposed aquatic habitat in the laterals and irrigation ponds. As previously described, these	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	the loss of aquatic habitat within concrete- and soil-lined laterals and irrigation ponds.		are artificially created for the conveyance and storage of irrigation water. Vegetation was not apparent at the time of the survey. They do not appear to be jurisdictional Waters of the United States, subject to USACE, nor do they come under the Section 1600 provisions of the California Fish and Game Code administered by the CDFG.	
5.10-2	Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in the loss of orchard, vineyard, irrigated agriculture/other, ruderal, redwood plantation, and developed habitats.	Less than significant	Draft General Plan Policy Response: Goals: NR-2 Implementation Measures: NR-3	Less than significant
5.10-3	Urban development west of Interstate 5 accommodated by the Jobs Emphasis or PC Environmental Review Plan Alternatives within the 40-year (buildout) growth boundaries will result in the loss of California annual grassland habitat.	Less than significant	Draft General Plan Policy Response: The California annual grassland habitat located west of I-5 is moderately disturbed by grazing, and predominantly supports common plant species. Such habitat is abundant throughout this region and the state (a contiguous band stretching over 100 miles to the north and south west of Interstate 5)	Less than significant
5.10-4	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in the loss of foraging habitat for greater sandhill crane and American peregrine falcon.	Less than significant	Draft General Plan Policy Response: Greater sandhill crane and American peregrine falcon may only occur as occasional visitors, migrants, transients, or foragers within the Study Area. Development of the Study Area as contemplated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives would have no effect on the breeding success of either of these species, although it could potentially result in a small reduction of foraging or wintering habitat available to them regionally.	Less than significant
5.10-5	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in the loss of habitat for certain special-status wildlife species.	Less than significant	Draft General Plan Policy Response: The Study Area is outside the known distribution of, or there is a lack of suitable habitat for, the giant garter snake and the western mastiff bat. No impacts would occur to these species, which are absent from the Study Area. Some special-status wildlife species may occasionally visit the Study Area during migration or during transient movements. Development of the Study Area as contemplated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternative will have no effect on the breeding success of any of these species, although it may result in a small reduction of foraging habitat and a small reduction in the value of roosting habitat available to some of these species on	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			a regional level. Some special-status wildlife species may be present on the Study Area in small numbers though the quality of habitat is already diminished by existing human disturbance. Development accommodated by any of the Equal-Weight Alternatives will have no effect on the breeding success of any of these species, although it may result in a small reduction of foraging habitat and a small reduction in the value of roosting habitat available to some of these species on a regional level.	
5.10-6	Development west of Interstate 5 accommodated by the Jobs Emphasis and PC Environmental Review Plan Alternatives within the 40-year (buildout) growth boundary may result in the loss of vernal pool habitat.	Potentially significant	Draft General Plan Policy Response: Policies: NR-3.4, NR-3.9 Implementation Measures: NR-13	Less than significant
5.10-7	Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could result in the loss of riparian habitat.	Potentially significant	Draft General Plan Policy Response: Policies: NR-3.8, NR-3.9 Implementation Measures: NR-13	Less than significant
5.10-8	Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could result in the loss of irrigated agriculture/alfalfa habitat.	Less than significant	Draft General Plan Policy Response: Although irrigated alfalfa is a common habitat type in the region, and loss of this habitat alone is not significant, Swainson's hawks utilize this habitat type for foraging. Implementation measure NR-13 described below under Swainson's hawk, would reduce the impact related to loss of this habitat	Less than significant
5.10-9	Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could accommodate individual projects near Del Puerto Creek that could disturb Valley elderberry longhorn beetle (VELB) and result in the loss of suitable habitat.	Potentially significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-10	Individual projects accommodated by the Jobs Emphasis or PC Environmental Review Plan Alternatives within the 40-year (buildout) growth boundary in the area west of Interstate 5 could disturb California tiger salamander and result in the loss of suitable habitat.	Potentially significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-11	Individual projects accommodated by the Jobs Emphasis and PC Environmental Review Plan	Potentially significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	Alternatives within the 40-year (buildout) growth boundary could disturb California red-legged frog and result in the loss of suitable habitat.			
5.10-12	Individual projects accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries could disturb nesting Swainson's Hawk and result in the loss of foraging habitat.	Potentially significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-13	Individual projects accommodated by the Jobs Emphasis and PC Environmental Review Plan Alternatives within the 40-year (buildout) growth boundary could result in the loss of habitat for, and potential take of, San Joaquin kit fox.	Potentially significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-14	Individual projects accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries could result in the mortality or injury of, and loss of habitat for, southwestern pond turtles.	Significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-15	Individual projects accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could disturb nesting burrowing owls and result in the loss of occupied burrowing owl habitat.	Significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-16	Individual projects accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could disturb nesting avian "species of special concern".	Significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-17	Individual projects accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could disturb raptors.	Significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-18	Individual projects accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives could result in impacts to special-status plants.	Significant	Draft General Plan Policy Response: Policies: NR-13	Less than significant
5.10-19	Future projects accommodated by the Equal-Weight Alternatives within the 20-year and 40-year (buildout) growth boundaries have the potential to degrade water quality within the irrigation laterals,	Potentially significant	Draft General Plan Policy Response: Impacts related to water quality are discussed in Chapter 5.13 of this EIR under Hydrology and Water Quality. As discussed in Chapter 5.13, future projects, would have to comply with State and federal	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	within Del Puerto Creek in the area west of Interstate 5, in the San Joaquin River, and at the terminus of the laterals and within Salado Creek as a result of pollution, sedimentation, and litter stemming from site construction. These factors could result in significant indirect effects to downstream biological resources.		water quality regulations, including California's General Construction Stormwater Permit, which requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which are designed to manage stormwater quality degradation through best management practices during and after construction. These practices may include temporary drainage ditches, culverts, berms, and/or straw bales that confine stormwater and prevent it from carrying sedimentation off of the Study Area.	
5.10-20	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development will adversely impact habitats for sensitive biological resources.	Cumulatively considerable	Draft General Plan Policy Response: Foreseeable future development activities in the vicinity of the Study Area would result in considerable disturbance to special-status wildlife and plants, their habitats, and other sensitive biological resources. However, the incremental effect of the proposed project, when combined with the effects created by other past and reasonably foreseeable projects, would be cumulatively considerable even though the project applicant will obtain regulatory approvals and implement the mitigation measures previously described to address direct and indirect effects of the project. The draft policies, implementation measures and additional mitigation measures recommended above for Project Impacts will help mitigate regional impacts relating to habitat loss for plant and animal species.	Cumulatively considerable, and significant and unavoidable
5.11 Agricultural Resources				
5.11-1	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result in the permanent conversion of prime farmland to urban land uses within the 20-year and 40-year (buildout) growth boundaries.	Potentially significant	Draft General Plan Policy Response: Policies: NR-2.1, NR-2.2, NR-2.3, NR-2.4, NR-2.5, NR-2.6, NR-2.7, NR-2.8, NR-2.9, NR-2.10, NR-2.11 Implementation Measures: NR-C, NR-F	Significant and unavoidable
5.11-2	The widening of roadways outside the Study Area would result in the permanent loss of Important Farmland within the 20-year and 40-year (buildout) growth boundaries for each Equal-Weight Alternative.	Potentially significant	Draft General Plan Policy Response: Policies and implementation measures recommended by the draft Policy Document for Project Impacts would apply to the conversion of agricultural land for roadway improvements. The net result after application of the recommended policies and programs is a permanent loss of prime farmland.	Significant and unavoidable
5.11-3	Construction of a regional park in the vicinity of the San Joaquin River would result in the permanent loss of Important Farmland.	Potentially significant	Draft General Plan Policy Response: Policies and implementation measures recommended by the draft Policy Document for Project Impacts would apply to the conversion	Significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			of agricultural land for a regional park. The net result after application of the recommended policies and programs is a permanent loss of prime farmland.	
5.11-4	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would create conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40-year (buildout) growth boundaries.	Potentially significant	Draft General Plan Policy Response: NR-2.2, NR-2.4, NR-2.10 Additional Mitigation: Draft General Plan Policy Response: Mitigation Measure: 5.11-2(a)	Significant and unavoidable
5.11-5	Development accommodated by the Compact development, Jobs Emphasis or Planning Commission Environmental Review Alternatives for both the 20-year and 40-year (buildout) growth boundaries could result in a conflict with land currently zoned for agriculture as well as with existing Williamson Act contract lands.	Potentially significant	Draft General Plan Policy Response: Policies: NR-2.1, NR-2.2, NR-2.3, NR-2.4, NR-2.5, NR-2.6, NR-2.7, NR-2.8, NR-2.9, NR-2.10, NR-2.11 Implementation Measures: NR-C, NR-F	Significant and unavoidable
5.11-6	Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries together with regional development, potential roadway improvements and a regional park will contribute to the cumulative loss of Important Farmland.	Cumulatively considerable	Draft General Plan Policy Response: The draft policies listed above for Project Impact 5.11-1 will help mitigate regional impacts related to the conversion of agriculture.	Cumulatively considerable, and significant and unavoidable
5.11-7	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would create conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40-year (buildout) growth boundaries.	Cumulatively considerable	Draft General Plan Policy Response: The policies and implementation measures recommended for Project Impact 5.11-4 will help mitigate regional impacts related to conflicts between urban and agricultural uses.	Cumulatively considerable, and significant and unavoidable
5.12 Hazards and Hazardous Materials				
5.12-1	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could include the transport of hazardous materials on Study Area roadways within either the 20-year or 40-year (buildout) growth boundaries, which could result in exposure of such materials to the public either through routine use or due to accidental release.	Less than significant	Draft General Plan Policy Response: Policies: HS-4.1, HS-4.2, HS-4.3, HS-4.4, HS-4.5, HS-4.6	Less than significant
5.12-2	Development accommodated by the Compact Development, Jobs Emphasis or PC Env. Review Plan alternatives within either the 20-year or 40-year (buildout) growth boundaries could result in	Less than significant	Draft General Plan Policy Response: HS-3.6, HS-3.8, HS-4.1, HS-4.2, HS-4.4, HS-6.3, HS-6.4, HS-6.5, HS-6.6, HS-6.7, HS-6.8, HS-7.1	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	the release of hazardous materials into the environment under reasonably foreseeable upset or accident conditions.			
5.12-3	The Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives would accommodate urban land uses within both the 20-year and 40-year (buildout) growth boundaries that would potentially expose construction workers and future residents to potentially hazardous concentrations of environmentally-persistent pesticides (e.g., DDT, toxaphene).	Potentially significant	Draft General Plan Policy Response: HS-6.5, HS-6.7, HS-6.8, HS-6.9 Additional Mitigation: Draft General Plan Policy Response: Implementation Measure: HS-10	Less than significant
5.12-4	Each of the Equal-Weight Alternatives designates areas for urban development in the vicinity of the Patterson Airport and the Crows Landing Air Facility within both the 20-year and 40-year (buildout) growth boundaries which may expose people or property to hazards associated with aircraft operations.	Less than significant	Draft General Plan Policy Response: LU-9.1, LU-9.2	Less than significant
5.12-5	The Equal-Weight Alternatives may be inconsistent with the draft Airport Land Use Plan for the Crows Landing Airfield.	Potentially significant	Draft General Plan Policy Response: Each of the Equal-Weight Alternatives are consistent with safety standards recommended by the draft Airport land Use Plan for Crows Landing.	Less than significant
5.12-6	Proposed land uses and/or changes in land use patterns that would occur as a result of the Compact Development, Jobs Emphasis or PC Environmental Review Plan within both the 20-year and 40-year (buildout) growth boundaries would not interfere with adopted emergency response or evacuation plans.	Less than significant	Draft General Plan Policy Response: None of the Equal-Weight Alternatives would alter the City's overall land use pattern or land use designations to such an extent that it would conflict with the City's emergency response and/or evacuation plans. The roadway improvements recommended by the Circulation Diagram (Figure 3.0-9) incorporate the recommendations of the City Fire Department and Police Department with regard to emergency access to all parts of the Study Area. Where necessary, additional fire and police sub-stations will be provided to serve the growing populations accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Alternatives within both the 20year and 40-year (buildout) growth boundaries. The reader is referred to Section 5.3 Public Services for a discussion of impacts relating to police protection and fire protection.	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
			Implementation of the proposed roadway system would improve city roadway connectivity, allowing for better emergency vehicle access to residences as well as evacuation routes for area residents. In addition, the draft Policy Document includes several policies that directly address the management of development to minimize impacts relating to the accidental release of hazardous materials, including: Policies: HS-4.1, HS-4.2, HS-4.4 Implementation Measures: HS-3, HS-4	
5.12-7	Increased rail operations over time, combined with an increase in population, employment, motor vehicle, pedestrian and bicycle traffic associated with the Compact Development, Jobs Analysis or PC Environmental Review Plans within both the 20-year and 40-year (buildout) growth boundaries, will increase the risk associated with at-grade railroad crossings.	Potentially significant	Draft General Plan Policy Response: Policies HS-7.1, HS-7.2,	Less than significant
5.12-8	Future residents and property accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Alternatives within both the 20-year and 40-year (buildout) growth boundaries could be isolated from emergency services as a result of a train blocking one or more of the at-grade railroad crossings.	Less than significant	Draft General Plan Policy Response: Policies: HS-4.2, HS-4.4 Implementation Measures: HS-2, HS-3, HS-4	Less than significant
5.12-9	Development west of Interstate 5 in the foothills of the Diablo Range accommodated by the Jobs Emphasis and PC Environmental Review Alternatives within the 40-year (buildout) growth boundary could place residents and property at risk from wildland fires.	Potentially significant	Draft General Plan Policy Response: Policies: PS-6.1, PS-6.2, PS-6.3, PS-6.4 Implementation Measures: PS-8, PS-9, PS-11	Less than significant
5.12-10	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development through 2050 will contribute to the cumulative increase in the use, storage, and transport of hazardous materials and the risk associated with these materials.	Cumulatively considerable	Draft General Plan Policy Response: The draft policies listed above for Project Impacts will help mitigate regional impacts relating to hazards and hazardous materials	Less than cumulatively considerable
5.12-11	Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan	Less than cumulatively considerable	Draft General Plan Policy Response: The draft policies listed above for Project Impacts under impacts 5.12-3 and 5.12-4 will	Less than cumulatively considerable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	Alternatives together with regional development through 2050 may expose additional people and property to the hazards associated with aircraft operations at the Patterson Airport and the Crows Landing Airfield.		mitigate cumulative impacts associated with aircraft operations.	
5.12-12	Proposed land uses and/or changes in land use patterns that would occur as a result of the Compact Development, Jobs Emphasis or PC Environmental Review Plan together with regional growth may interfere with adopted emergency response or evacuation plans.	Less than significant	Draft General Plan Policy Response: The draft policies listed above for Project Impacts under impact 5.12-5 will mitigate cumulative impacts relating associated with consistency with emergency response plans.	Less than cumulatively considerable
5.12-13	Increased rail operations, combined with an increase in population, employment, motor vehicle, bicycle and pedestrian traffic in the region will increase the risk associated with at-grade railroad crossing.	Less than cumulatively considerable	Draft General Plan Policy Response: The draft policies listed above for Project Impacts under impact 5.12-8 will mitigate cumulative impacts relating to at-grade rail crossings.	Less than cumulatively considerable
5.13 Hydrology and Water Quality				
5.13-1	Development activities accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries could result in the discharge of polluted runoff from the construction of future urban development, potentially causing harm to the biological integrity of waterways, violating water quality standards, or otherwise substantially degrading surface water quality.	Potentially significant	Draft General Plan Policy Response: Policies: NR-1.2, NR-1.3, NR-1.4, NR-1.7, NR-2.11, NR-6.1, HS-2.9, HS-2.14, HS-6.5, PS-2.5, HS-3.13, PS-3.14 Implementation Measures: HS-1, PS-5, NR-1, PS-6, PS-7	Less than significant
5.13-2	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan within the 20-year and 40-year (buildout) growth boundaries could result in the discharge of polluted runoff, potentially causing harm to the biological integrity of waterways, violating water quality standards, or otherwise substantially degrading surface water quality.	Potentially significant	Draft General Plan Policy Response: Policies: NR-1.2, NR-1.3, NR-1.4, NR-1.7, NR-2.11, NR-6.1, HS-2.9, HS-2.14, HS-6.5, PS-2.5, HS-3.13, PS-3.14 Implementation Measures: HS-1, PS-5, NR-1, PS-6, PS-7	Less than significant
5.13-3	The expansion of the City's use of recycled water for landscape irrigation and/or groundwater recharge as contemplated under each of the Equal-Weight Alternatives could pose a health risk to future residents and visitors.	Potentially significant	Draft General Plan Policy Response: Compliance with U.S. EPA Surface Water Treatment Rule (SWTR) as well as, State and local regulations will reduce potential impacts associated with the expanded use of recycled water	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
5.13-4	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan within the 20-year and 40-year (buildout) growth boundaries could result in the degradation of groundwater quality resulting from construction and operation of future land uses.	Less than significant	Draft General Plan Policy Response: Policies: NR-1.2, NR-1.3, NR-1.4, NR-1.5, NR-1.7, NR-1.8, NR-2.11, NR-6.1, HS-2.9, HS-2.14, HS-6.5, PS-2.5, PS-3.13 Implementation Measures: HS-1, PS-5, NR-1, PS-6, PS-7	Less than significant
5.13-5	Supplying storm drainage facilities to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of storm water conveyance and storage infrastructure into previously un-served areas.	Potentially significant	Draft General Plan Policy Response: Policies: AR-1.3, AR-1.4, AR-5.1, NR-1.3, HS-2.9 Implementation Measures: AR-1, AR-2, HS-6, HS-10, PS-6, PS-7	Significant and unavoidable
5.13-6	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan within the 20-year and 40-year (buildout) growth boundaries would increase impervious surfaces and alter drainage conditions and rates within the Study Area, which in turn could result in increased runoff and potential flooding impacts.	Potentially significant	Draft General Plan Policy Response: Policies: HS-2.1, HS-2.2, HS-2.3, HS-2.4, HS-2.5, HS-2.6, HS-2.7, HS-2.8, HS-2.9, HS-2.10, HS-2.11, HS-2.12, HS-2.13, HS-2.14, HS-2.15, HS-4.4 Additional Mitigation: Draft General Plan Policy Response: Mitigation Measures: HS-15	Less than significant
5.13-7	Portions of the areas designated for urban development by the Compact Development, Jobs Emphasis and PC Environmental Review Plan are subject to flooding during a 100-year flood event which could expose people and property to the risk of flooding.	Potentially significant	Draft General Plan Policy Response: Policies: HS-2.1, HS-2.2, HS-2.3, HS-2.4, HS-2.5, HS-2.6, HS-2.7, HS-2.8, HS-2.9, HS-2.10, HS-2.11, HS-2.12, HS-2.13, HS-2.14, HS-2.15, HS-4.4 Implementation Measures: PS-5, PS-11 Additional Mitigation: Draft General Plan Policy Response: Policies: HS-2.16, HS-2.17 Implementation Measures: HS-16	Significant and unavoidable
5.13-8	Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives along with foreseeable development in the region would contribute to a cumulative degradation of water quality from construction activities and increased urban runoff.	Cumulatively considerable	Draft General Plan Policy Response: Continued compliance with existing water quality regulations, including the NPDES program, as well as implementation of the policies and programs recommended by the Draft Policy Document described above would reduce cumulative impacts to water quality	Cumulatively considerable and significant and unavoidable
5.13-9	Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives along with foreseeable development in the region would increase impervious surfaces and alter drainage conditions and rates in the Study Area, which could	Cumulatively considerable	Draft General Plan Policy Response: The improvements recommended by the 2010 Storm Drainage Master Plan are designed to ensure that the contribution of runoff from development of the Study Area does not worsen downstream flooding or exceed the capacity of receiving waters. Thus, implementation of the Master Plan, together with compliance	Cumulatively considerable and significant and unavoidable

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	contribute to cumulative flood conditions along the San Joaquin River and local waterways.		with existing flood hazard mitigation, will ensure impacts regional flooding will be less than cumulatively considerable. In addition, the draft policies listed above for Project Impacts will mitigate regional impacts relating to hydrology and water quality.	
5.14 Visual and Aesthetic Resources				
5.14-1	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result have a substantial adverse effect on scenic vistas from Interstate 5 (a State Designated Scenic Highway), and will substantially affect scenic resources and degrade the scenic qualities within the Study Area within the 20-year and 40-year (buildout) growth boundaries.	Potentially significant	Draft General Plan Policy Response: Policies: LU-1.1, LU-1.4, LU-1.6, CD-1.5, CD-1.6, CD-1.7, CD-2.1, CD-3.1, CD-3.2, CD-3.3, CD-4.1, CD-4.2, CD-4.3, CD-4.4, CD-5.1, NR-1.1, NR-2.1, NR-2.2, NR-2.3, NR-2.4, NR-2.5, NR-2.6, NR-2.9, NR-3.8, NR-3.9, NR-3.11 Implementation Measures: CD-1, NR-C, NR-F	Significant and unavoidable
5.14-2	The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result in the introduction of additional light and glare from expanded urban development within the 20-year and 40-year (buildout) growth boundaries into areas currently dominated by agricultural operations.	Less than significant	Draft General Plan Policy Response: LU-1.1, NR-2.3 Implementation Measures: CD-1 Additional Mitigation: Draft General Plan Policy Responses: Implementation Measures: CD-3.5	Less than significant
5.14-3	Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with development in the region would result in the cumulative and permanent alteration of the area's scenic qualities during the next 40 years and would result in the cumulative increase in sources of light and glare.	Cumulatively considerable	Draft General Plan Policy Response: The draft policies listed above for Project Impacts will help mitigate regional impacts relating to scenic and aesthetic resources and light and glare. Applying these policies and implementation measures, such as the continued enforcement of the City's Community Design Guidelines will assist in reducing, but not fully mitigating these cumulative impacts.	Cumulatively considerable, and significant and unavoidable
5.15 Cultural Resources				
5.15-1	Development activities accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains.	Potentially significant	Draft General Plan Policy Response: Policies: PR-5.1, PR-5.2, PR-5.3, PR-5.4, PR-6.1, PR-6.2, PR-6.3, PR-6.4, PR-6.5 Implementation Measures: PR-8	Less than significant
5.15-2	Development activities accommodated by buildout of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives could result in the potential disturbance of existing	Potentially significant	Draft General Plan Policy Response: Policies: PR-4.1, PR-4.2, PR-4.3, PR-4.4, PR-4.5, PR-4.6, PR-4.7	Less than significant

Table 2.0-3. Summary of Impacts and Mitigation

Issue Area	Impact Statement	Level of Significance Prior to Mitigation	Mitigation	Residual Level of Significance
	historic sites and structures.			
5.15-3	Implementation of any of the Equal-Weight Alternatives could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). However, policy provisions of the proposed General Plan Update would mitigate potential impacts to these resources.	Less than significant	Draft General Plan Policy Response: Implementation Measures: PR-8	Less than significant
5.15-4	Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives along with foreseeable development in the region could contribute to further disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains.	Less than cumulatively considerable	Draft General Plan Policy Response: The draft policies listed above for Project Impacts will mitigate regional impacts relating to cultural, paleontological and historical resources.	Less than cumulatively considerable

3.0 DESCRIPTION OF EQUAL WEIGHT PROJECT ALTERNATIVES

Introduction

The CEQA Guidelines [§15124] require that a sufficiently detailed project description be provided to allow meaningful analysis of the project's impacts. The "project" being evaluated by this Draft EIR is the City of Patterson General Plan. In accordance with CEQA Guidelines [§15124], the project description includes the following:

- Location and boundaries of the project shown on a detailed topographic and regional map (Figures 3.0-1 and 3.0-2)
- A statement of objectives (including purpose of the project)
- A general description of technical, economic, and environmental characteristics, including engineering proposals and supporting public service facilities
- A statement of the EIR's intended use, including a list of agencies expected to use the EIR in decision-making, a list of permits and other approvals required to implement the project, a list of related environmental review and consultation requirements, and a list of the City's decisions required, in order of occurrence, needed to implement the plan

The project description also contains relevant contextual information, including a description of the Plan development process.

The level of detail contained in the project description is guided by §15124, which states that the description should include all of the items listed above, *"...but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact."* The project description, therefore, need not be exhaustive, but should be accurate, stable and finite, to the best of the lead agency's ability. This EIR incorporates the entire Plan by reference. The Plan is available for review at City Hall and online at www.ci.patterson.ca.us.

Project Title

2010 City of Patterson General Plan Update
Lead Agency: City of Patterson
1 Plaza
Patterson, CA 95363

Contact: Joel Andrews, Associate Planner
Email: jandrews@ci.patterson.ca.us
Phone: (209) 895-8020
Location: City of Patterson

Local and Regional Setting

Project Location

The City of Patterson is located on the west side of Stanislaus County (Figure 3.0-2) in central California and within the topographical region known as the Central Valley, which lies between the Sierra Nevada Mountains to the east and the Diablo Range to the west. The City is about 70 miles south of the City of Sacramento and about the same distance from San Francisco. The city limits are shown in Figure 3.0-3. As of January 1, 2009, the incorporated limits of the City of Patterson included about 3,820 acres or about 5.97 square miles of land and about 4,800 acres or about 7.5 square miles within its General Plan area.

Setting

Patterson is located in the heart of a rich agricultural region on the floor of the San Joaquin Valley between Interstate 5 and State Highway 33. The land is flat and fertile; consequently the City is surrounded on three sides by ongoing agricultural operations. To the west of Interstate 5 are the foothills of the Gabilan Range which separates the San Joaquin Valley from the San Francisco Bay area to the west. To the east the Study Area is bordered by the San Joaquin River which serves as the primary drainage for the southern San Joaquin Valley. In addition to the River, the City's Study Area is crossed by two intermittent streams, Del Puerto Creek and Salado Creek.

Other physical features affecting the Study Area include the Delta Mendota Canal and the California Aqueduct which convey water from federal and State water sources to the north to agricultural and urban customers. The Southern Pacific Railroad operates two north-south rail lines that pass through the City parallel to State Highway 33.

To the south of the City is the Crows Landing Airfield, a former Navy airfield which was transferred to Stanislaus County in 1999.

The General Plan

A general plan is a requirement of State law and serves as a community's "constitution" for development and the use of land within its Study Area. It must be comprehensive and long-term, detailing proposals for the "...physical development of the city, and of any land outside its boundaries which in the planning agency's judgment bears relation to its planning." (Government Code §65300 et seq.). Time horizons vary, but the typical general plan looks 10-20 years into the future. The Patterson General Plan covers two planning timeframes – 20 years and 40 years into the future. The 40 year analysis is the equivalent of **buildout of the general plan**. Of course it is impossible to predict when buildout could actually occur, thus this timeframe was used for analytical purposes.

Government Code §65302 specifically requires that the general plan address seven topics or "elements." These are:

- Land use
- Circulation (transportation)
- Housing
- Conservation
- Open space
- Noise, and
- Safety.

The plan must analyze issues of importance to the community, set forth policies in text and diagrams for conservation and development, and outline specific programs for implementing these policies.

Preparing the general plan can be viewed as an activity which sharpens and focuses the many concerns of citizens within the community and provides a structure by which these often conflicting concerns can be forged into a common vision of the future. By focusing attention on the issues facing the community and placing them in an expanded time frame, the general plan helps citizens see their community as a complex system- a living entity that grows and responds to problems and opportunities - and it helps to guide the community along an agreed-upon course.

On a more concrete level, preparing, adopting, and maintaining a general plan serves the following purposes:

- To establish within local government the capacity to analyze local and regional conditions and needs in order to respond effectively to the problems and opportunities facing the community;
- To identify the community's environmental, social, and economic goals;
- To record the local government's policies and standards for the maintenance and improvement of existing development and the location and characteristics of future development;
- To provide citizens with information about their community and with opportunities to participate in the local planning and decision-making process;
- To improve the coordination of community development and environmental protection activities among local, regional, state, and federal agencies; and
- To establish a basis for subsequent planning efforts, such as preparation of specific plans, redevelopment plans, and special studies, to deal with unique problems or areas in the community.

While the general plan sets out policies and identifies ways to put these policies into action, the actual implementation of the plan is a complex and lengthy process in its own right. As with piecing together a puzzle, local officials must take many separate, but interconnected actions according to the direction set out in the general plan.

These various actions rest on two essential powers of local government: corporate and police powers. Using their "corporate power," local governments collect money through bonds, fees, assessments, and taxes, and spend it to provide services and facilities such as police and fire protection, streets, water systems, sewage disposal facilities, drainage facilities, and parks. Using their "police power," local governments regulate citizens' use of their property through zoning, subdivision, and building regulations in order "to promote the health, safety, and welfare of the public." The general plan provides the framework for the exercise of these powers by local officials. By virtue of state law and case law, all zoning, subdivision, and public works decisions must be consistent with the general plan.

Incorporated (City) Limits

Figure 3.0-3 shows the City's current (2009) incorporated limits within which the City provides the full range of public services and exercises exclusive control over land use.

The Area Governed by the 1992 General Plan (General Plan Area)

The City's *general plan area* includes the city's incorporated limits as well as "... *land outside its boundaries which in the planning agency's judgment bears a relation to its planning*" (Government Code Section 65300). As shown on Figure 3.0-3, the City's general plan area covers an area that extends to the north to Zacharias Road, south to Marshal Avenue, and east about mid-way between Elm Avenue and Sycamore Avenue. The general plan area also designates urban development west of Interstate 5. Table 3.0-1 provides a summary of developed acreage within the City's current General Plan area by General Plan land use category as of January, 2009. As shown in Table 3.0-1, the current General Plan Area consists of about 4,967 acres; existing land use within the General Plan Area is summarized on Table 3.0-2. According to the California Department of Finance, the City's January, 2009 population was about 21,229 and the number of dwelling units was about 6,000.

Sphere of Influence

Another important regulatory boundary shown on the Land Use Diagram is the City's adopted *sphere of influence*. The Cortese-Knox Act defines a sphere of influence as a "...*plan for the probable ultimate physical boundaries and service area of a local agency...*" (Government Code Section 56076). In more practical terms, the sphere of influence identifies land within the City's General Plan area that may eventually be annexed into the City.

The designation of a sphere of influence and the annexation of land into the City are decided by the Stanislaus Local Agency Formation Commission (LAFCo), which consists of representatives from member jurisdictions within the County. Accordingly, LAFCo policies are key to identifying areas for future City expansion.

In establishing or revising a sphere of influence, LAFCo is guided by policies aimed at fostering orderly growth. The two overriding concerns of Stanislaus LAFCo with regard to the expansion of spheres of influence are 1) the ability of the local jurisdiction to provide public services in a timely and cost-effective manner, and 2) minimizing the premature conversion of prime agricultural lands. At a minimum, these two factors must be addressed in order for the sphere to be amended.

The City's currently-adopted sphere of influence coincides with the City's General Plan Area.

General Plan Study Area

The General Plan Study Area (Study Area) refers to land around the current City limits which was studied for the purposes of identifying physical and regulatory constraints and suitable locations for additional urban development. The Study Area consists of about 12,768 acres that extends north to Del Puerto Creek, west to the foothills of the Diablo Range, south to an area north of Marshall Road and east to Elm Avenue. Existing land use within the Study Area is summarized on Table 3.0-2.

Figure 3.0-1: Regional Location

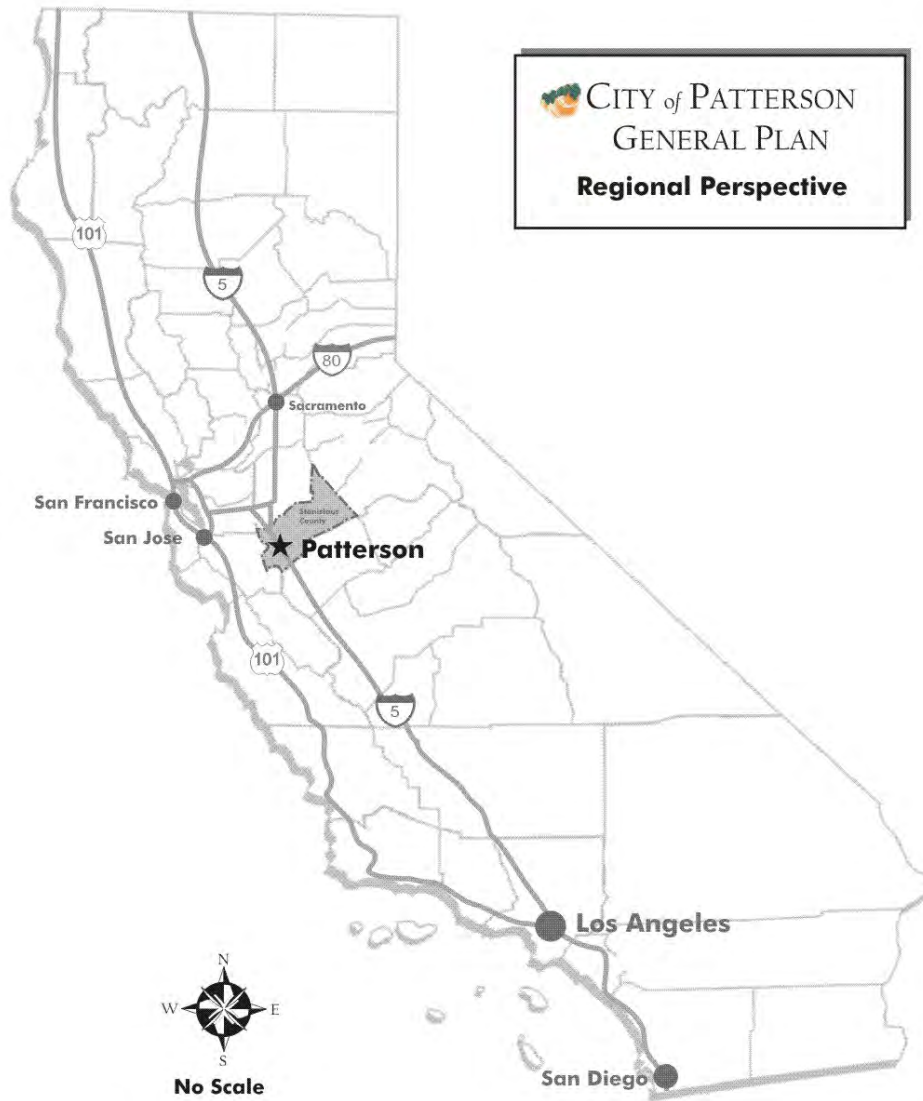
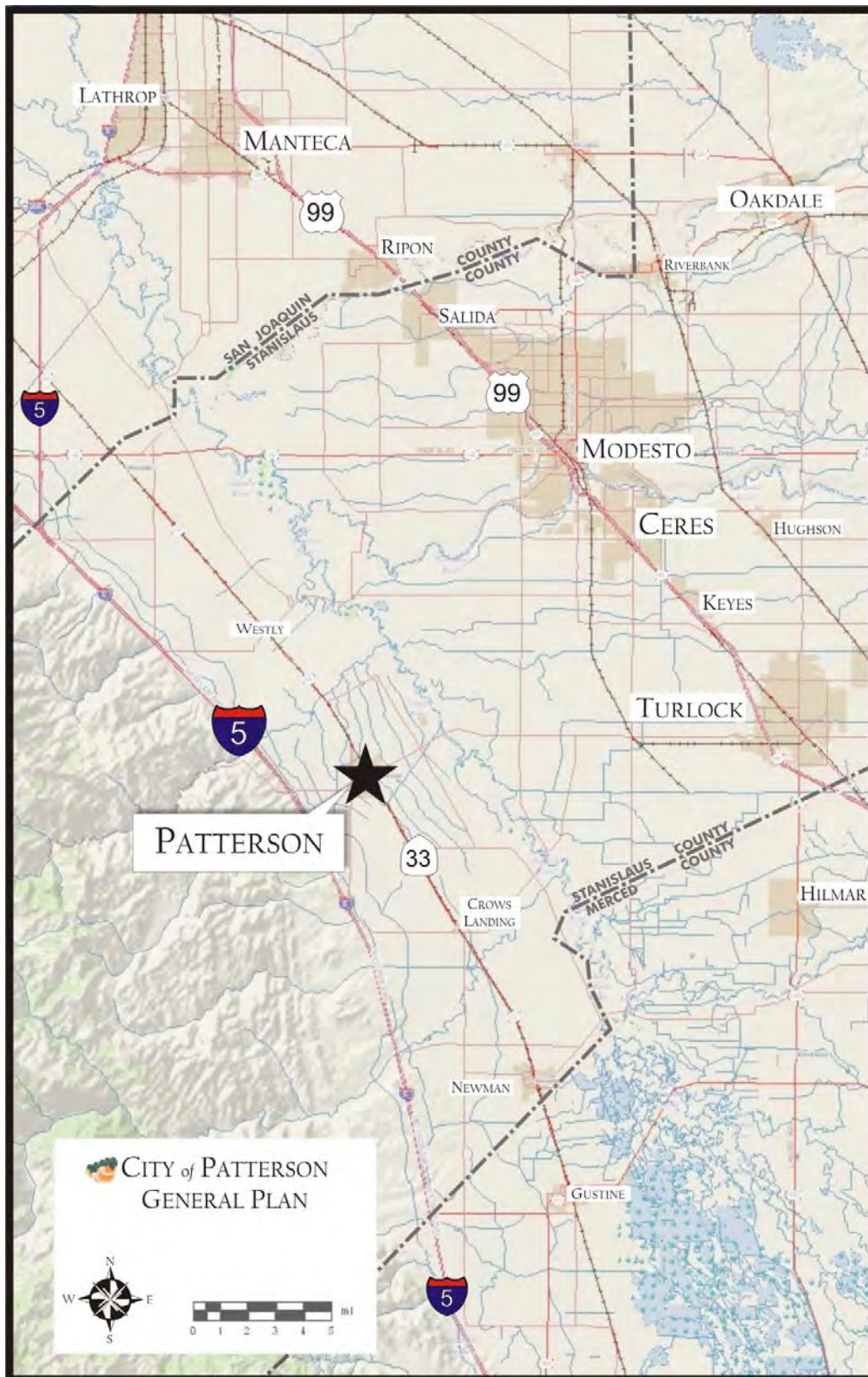


Figure 3.0-2: Regional Setting



Purpose and Objectives of the General Plan Update

Purpose of the General Plan Update

The purpose of the 2010 City of Patterson General Plan Update is to:

- Set forth a strategy for the long-term growth and development of the City that serves the needs of present and future residents.
- Incorporate policies and implementation measures that address changes to State and federal laws that have occurred since the General Plan last underwent a comprehensive revision in 1992.
- Improve the supply of affordable housing and the ratio of jobs to housing in Patterson.
- Provide a wider range of retail opportunities to meet more for the day to day needs of City residents.
- Attract stable, well paying jobs.
- Grow the local economy and become the economic center of western Stanislaus County.

Objectives

The draft General Plan was crafted to address the following overall objectives:

In General

1. Patterson's small size and character contribute to a strong sense of community shared by its residents. These characteristics should be protected and enhanced as the City's future is planned.
2. The City is located within proximity of the San Francisco Bay area, the Sierras and Sacramento. The General Plan should explore ways to capitalize on Patterson's strategic location to these amenities.
3. The City's unique history should be preserved and celebrated.
4. Patterson's population is diverse, and within that diversity there remains an atmosphere of friendliness and cooperation toward the common good. This is based on a number of important factors including good schools and recreational programs for youth, active service clubs and churches, and civic involvement. The General Plan should reinforce efforts to maintain this neighborliness in a true community.

Community Form and Design

5. The principal entrances to Patterson should be developed with "gateways" which announce that one has entered the City. Elements of such gateway treatments can include structures, special landscaping and signs. Gateways to the downtown should also be well marked.
6. New residential neighborhoods should be designed to capture the best qualities of existing neighborhoods (attractive architecture and tree-lined streets) while providing a range of housing products that are affordable to all segments of the community. New neighborhoods contiguous to the older parts of town should build upon the existing grid pattern of streets and incorporate amenities such as parks, pedestrian and bicycle paths, and street trees.
7. The City's climate is generally viewed as favorable, with warm dry summers and mild winters. The General Plan should acknowledge these environmental elements and consider them in its recommended policies and programs. For example, the Plan can encourage more shade trees and

wind-rows, narrower streets in new residential areas, and the provision of outdoor shelter in new commercial projects.

8. Recognizing that the General Plan will eventually become the basis for appropriate zoning to implement land use and design objectives, elements of the Plan should ensure that land uses near one another are compatible and that new buildings fit their context.

Agriculture/Natural Resources

9. Patterson is surrounded by productive agricultural soils. The farming environment, especially the row crops and orchards, provide a beautiful rural context for the City that residents and visitors enjoy. Moreover, a good portion of the regional economy is related to agriculture, both directly and indirectly. Thus, protection of agricultural resources around the City and in the region is an important consideration in planning for the City's future.
10. Agricultural activities and residences can impact one another. For example, noise, dust or spraying associated with farming could adversely affect housing; in turn, complaints from residents can sometimes impede efficient cultivation practices. Therefore, the interface or boundary between agriculture and new development must be carefully considered.
11. The land in and around the City contains important natural resources, including productive agricultural soils, seasonal creeks, the San Joaquin River and the foothills to the west. These sensitive resources should be protected from the effects of urban development.

Noise, Access, & Traffic

12. Patterson has a quiet ambiance which should be protected in the future.
13. In addition to automobile circulation, the General Plan must address other transportation modes such as a bicycle route system and additional transit opportunities to surrounding communities.
14. The General Plan should investigate the need for, and options for providing, an additional interchange on the I-5 freeway north of the City.
15. The General Plan should also assess the need for, and the location of, one or more expressways to by-pass the City on the north and/or south to provide an additional east-west connection to the I-5 freeway.

Economic Development

16. While it is important to think expansively about the town's future, the Plan should be practical. An important element of this practicality is the City's financial position. Therefore, the General Plan should strive toward enhancing Patterson's fiscal resources so that the public facilities and services desired by the community can be paid for.
17. Efforts undertaken by the City to revitalize the downtown should continue. It is important that the downtown cultivate a market niche that protects downtown businesses from competition with commercial development anticipated elsewhere in the City. Increased activities (such as a farmers market and other special events) and more activities in the evening (such as more restaurants, bars and a movie theater) would help solidify the image of the downtown as a desirable place to shop, dine and visit.

18. Encouraging a more diverse range of commercial uses in Patterson is important, especially increased retail opportunities for large-scale, single tenant retail and/or smaller scale department stores, as well as greater variety of restaurants.
19. A strong economy is important to the desirable quality of life in Patterson. Industries that provide well-paying jobs and economic stability are especially valuable. The City should consider programs to actively recruit and retain such businesses for the West Patterson Business Park and elsewhere. In addition, the General Plan should continue to provide suitable locations for heavier industrial development.

Housing

20. Affordable housing is an important issue facing Patterson residents. The General Plan should ensure that sufficient affordable housing is provided to meet the needs of all income groups. Of particular importance is the provision of suitable land for higher-density residential development and entry-level for-sale housing.

Public Facilities and Services

21. New schools must be provided concurrently or in advance of population growth, and should be incorporated into the design of new residential neighborhoods.
22. The General Plan should investigate appropriate locations for an institution of higher education, such as a community college or university.
23. The General Plan should provide guidance with regard to appropriate locations for different types of public facilities. Locational criteria may include the relationship of the facility to the neighborhood or area being served, good public access to the buildings or facility, the interrelationship among different public uses or functions, and the ability of public facilities to stimulate associated private development or investment.
24. Better street lighting, road maintenance, storm drainage, curbs, gutters, crosswalks, and sidewalks are needed in the older parts of town.
25. Accessibility to public facilities is important. Accordingly, access for handicapped persons should be provided in all public facilities. In addition, the City should continue to require new development to meet accessibility standards when reviewing and approving projects and should monitor and enforce such requirements.
26. The provision of health care services to Patterson residents is a critical issue. The General Plan should provide guidance with respect to the appropriate location for new and/or expanded health care services, and explore strategies for funding such services with the Health Care District and other jurisdictions.
27. Patterson continues to be a relatively safe community. However, increased crime and vandalism are a growing concern. The General Plan should explore strategies for reducing crime and maintaining public safety.

Recreation

28. The City should foster a continued sense of community by providing opportunities for social activities and interaction, through parks and recreational facilities, public open spaces and plazas, and by supporting community festivities and events.
29. The quality of life for all residents is critically important, but enhancing the opportunities for the community's children is especially so. The General Plan should help address the needs of Patterson's youth. Examples include coordinated City/school district planning for schools and related educational facilities; providing for adequate parks and recreational programs; encouraging a wider variety of activities for youths; planning for safe and efficient transit.
30. Expanding the range of family oriented recreational facilities will be important.
31. The General Plan should investigate options for providing a performing arts center in Patterson.

Organization of the Draft General Plan

The Patterson General Plan consists of two documents: the *General Plan Background Report* and the *General Plan Policy Document*.

General Plan Background Report

The General Plan Background Report inventories and analyzes existing conditions and trends in Patterson, and provides the formal supporting documentation for general plan policy. The Background Report discusses each topic required by State general plan law as well as issues of purely local importance. The Background Report is organized into ten subject areas: land use; housing; population; economic conditions and fiscal considerations; transportation and circulation; public facilities and services; cultural and recreational resources; natural resources; health and safety; and scenic resources and urban design. Each section discusses the existing conditions in Patterson as well as the potential constraints to the future growth and development of the City associated with each topic. Lastly, each section of the Background Report provides a summary of findings relative to the particular topic which was used to guide the formulation of policies and implementation measures recommended by the Draft Policy Document.

The General Plan Policy Document and Land Use/Circulation Diagrams

The General Plan Policy Document includes the goals, policies, standards, implementation programs, quantified objectives, draft land use diagram, and draft circulation plan diagram that constitute the formal policy of the City of Patterson for land use, development, and environmental quality. The following definitions describe the nature of the statements of goals, policies, standards, implementation measures, and quantified objectives as they are used in the policy document:

Goal: The ultimate purpose of an effort stated in a way that is general in nature and immeasurable.

Policy: A specific statement in text or diagram guiding action and implying clear commitment.

Standard: A specific, often quantified guideline, incorporated in a policy or implementation program defining the relationship between two or more variables. Standards can often translate directly into regulatory controls.

Implementation Measure: An action, procedure, program, or technique that carries out general plan policy. Implementation programs also specify primary responsibility for carrying out the action and a time frame for its accomplishment.

Quantified Objective (Housing only): The number of housing units that the City expects to be constructed and the number of households the City expects will be assisted through Housing Element programs and based on general market conditions during the time frame of the Housing Element.

The General Plan Policy Document is divided into two main parts. The first part describes the designations appearing on the Land Use Diagram and outlines the standards of population density and building intensity for these land use designations as required by State law. Part I also contains a diagram depicting the proposed circulation system and a description of the Street classification system.

The second part contains explicit statements of goals, policies, standards, implementation measures, and quantified objectives for each of the following general plan elements:

Land Use
Community Design
Housing
Transportation and Circulation
Public Facilities and Services
Economic Development
Recreational, Cultural and Historic Resources
Natural Resources (Conservation and Open Space)
Health and Safety (Noise, Safety)
Administration and Implementation.

Each section includes several goal statements relating to different sub-issues or different aspects of the issue addressed in the section. For each goal statement there are several policies which amplify the goal statement. Implementation programs are listed at the end of each section. Each program is accompanied by the actions necessary carry out the program, the agencies or departments with primary responsibility for carrying out the program, and the time frame for implementation. The housing section also includes a statement of *quantified housing objectives*.

For ease of reference, the draft Policy Document describes five expansion areas that lie outside the current City limits and discusses relevant issues to be addressed in the development of each area.

General Plan Development Strategy

Each of the development alternatives under assessed by this EIR respond to the objectives described above by emphasizing a different mix of land uses. However, the draft Policy Document sets forth an overall development strategy that will apply to all three. That strategy is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:

- A mix of housing products and densities serving the broadest range of households, incomes and ages;
- A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;

- Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- Short blocks with a substantial tree canopy shading the street and sidewalk;
- Connectivity to surrounding neighborhoods, regional retail centers and employment;
- A sense of personal safety;
- Elements that foster the sustainable use of scarce or non-renewable resources.

In addition, each of the land use alternatives designates areas for urban development within a twenty year and a forty year growth boundary. The boundaries designating these areas are referred to as the *20 Year Growth Boundary* and the *40-Year Growth Boundary*. They are not permanent but express the City's preferences for the timing of future development, based on the availability of public services and the demand for land. In general, the preferred timing of urban development is as follows:

- First Priority—Vacant or underutilized areas within the current City limits;
- Second Priority—Vacant or underutilized areas within the City's currently-adopted sphere of influence;
- Third priority—Vacant or underutilized areas within the 20-year planning boundary;
- Fourth Priority—Areas outside the 20-year planning boundary.

And lastly, the City intends to manage the pace of development consistent with the provision of adequate services and infrastructure, including schools, and to improve the ratio of jobs to housing.

Existing Land Use

Table 3.0-1 provides a summary of developed acreage within the City's current General Plan area by General Plan land use category as of January, 2009. According to the California Department of Finance, the City's January, 2009 population was about 21,229 and the number of dwelling units was about 6,000.

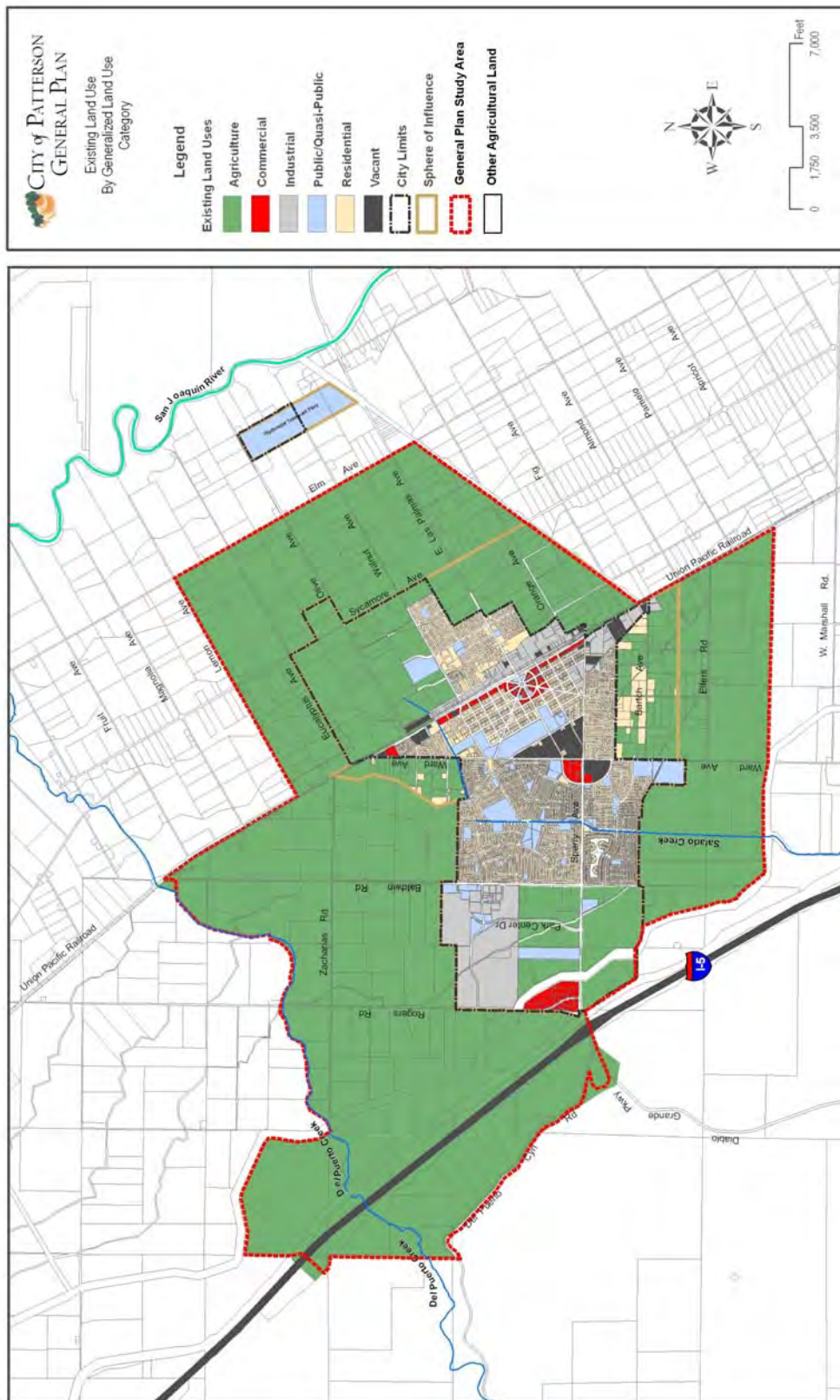
Table 3.0-1. Developed Acres Within the Current General Plan Area/Sphere of Influence	
Land Use Category	Developed Acres ¹
Estate Residential	27
Low Density Residential	1,168
Medium Density Residential	17
High Density Residential	44
Downtown Residential	203
Downtown Core	82
General Commercial	62
Highway Service Commercial	53
Neighborhood Commercial	0.00
Medical/Professional Office	2.00
Light Industrial	361
Heavy Industrial	132
Public/Quasi-Public	325
Parks and Recreation	167
Other ²	51
Total Acres:	2,694
Source: CMCA, 2009	
Notes:	
1. Gross acres inclusive of streets.	
2. Includes canals and other land not designated by the General Plan.	

Existing land use within the General Plan Study Area is summarized by Table 3.0-2 with generalized land use categories. Existing land use within the Study Area is illustrated by generalized land use categories on Figure 3.0-4.

**Table 3.0-2: Existing Land Use By Generalized Land Use Category --
General Plan Study Area (2009)
(gross acres¹)**

Land Use Category	Within the City Limits	Within the 1992 General Plan Area	Total General Plan Study Area	Percent of General Plan Study Area
Agriculture	881	1,726	9,079	71.1%
Commercial	199	199	199	1.6%
Industrial	493	493	493	3.9%
Public/Quasi-Public/Parks/Open Space	492	492	492	3.9%
Residential	1459	1,505	1602	12.5%
Vacant Land Other Than Agriculture	260	516	530	4.2%
Other Land ²	36	36	373	2.9%
Total:	3,820	4,967	12,768	100%
Source: CMCA, 2009				
Notes:				
1. Gross acres inclusive of streets. 2. Includes water bodies, freeway rights of way and canals.				

Figure 3.0-4: Existing Land Use Within the General Plan Study Area, 2009



Description of Equal-Weight Project Alternatives

In 2007 the City initiated a comprehensive revision of its 1992 General Plan. To help guide the formulation of a draft general plan, the City Council appointed an 11-member General Plan Advisory Committee representing the diverse interests of residents, property owners and other stakeholders as well as the Patterson Unified School District and the Del Puerto Health Care District. The Advisory Committee met for over a year from the summer of 2007 to the fall of 2008 to consider a diverse range of issues, and options for addressing those issues in the General Plan.

Based on the Advisory Committee's direction and in cooperation with City staff, the consultants prepared the draft goals, policies, and implementation programs and three alternative land use and circulation diagrams constituting the Policy Document of the draft Plan. These alternatives were considered by the City's Planning Commission in February, 2009 and produced the three development alternatives under consideration, and described in greater detail below. The City has not chosen a preferred land use alternative. Accordingly, each will be given equal weight in and consideration in the analysis provided in the draft EIR. For this reason, the alternatives are referred to collectively as "Equal-Weight Alternatives".

As described in the following pages, this EIR considers three General Plan alternatives, in addition to the No Project Alternative:

- The Compact Development Alternative
- The Jobs Emphasis Alternative, and
- The Planning Commission Environmental Review Alternative

When referred to collectively throughout this EIR they are referred to as the *Equal-Weight Alternatives*.

In addition, each Equal-Weight Alternative denotes areas for development within a *20-year* and a *40-year growth boundary*. The 20-year growth boundary corresponds to development expected to occur by the year 2030. The 40-year growth boundary corresponds to development expected to occur between 2030 and 2050 and represent buildout of various Equal-Weight Alternatives.

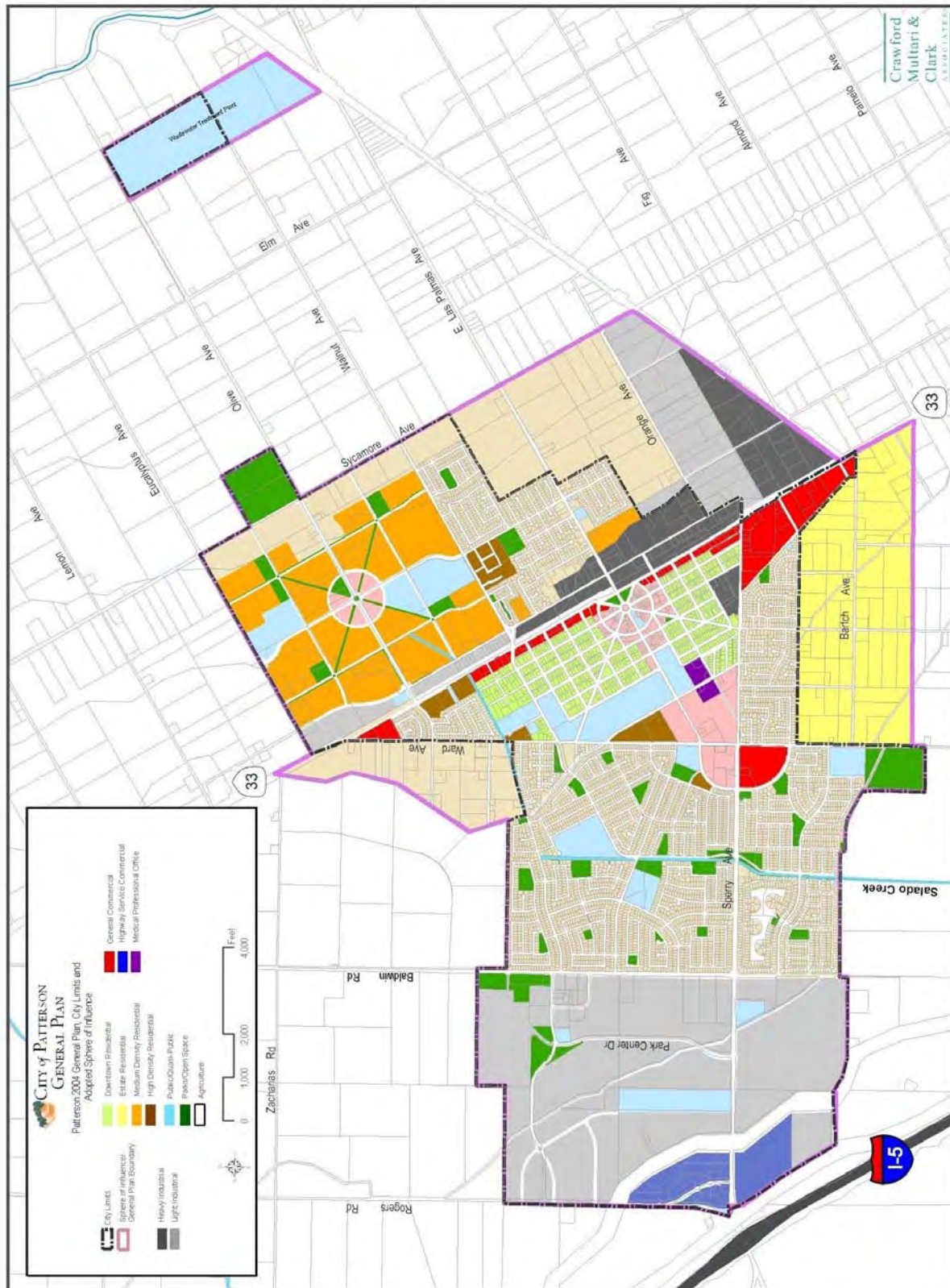
No Project Alternative — Buildout of 1992 General Plan

The No Project alternative consists of continued development of the City in accordance with the currently adopted General Plan which is shown on Figure 3.0-5. The development holding capacity of the 1992 General Plan is summarized in Table 3.0-3.

As shown in Table 3.0-3, the currently adopted General Plan would accommodate about 12,000 more residents and about 10 million square feet of additional non-residential floor space.

Table 3.0-3: Summary of The No Project – Buildout of 1992 General Plan Alternative		
Land Use Category	Total Gross Acres ¹	Vacant Acres
Mixed-Use Hillside Development	0	0
Neighborhood Village	0	0
Estate Residential	388	388 ²
Low Density Residential	1,684	516
Medium Density Residential	389	321
High Density Residential	58	14
Downtown Residential	203	0
Downtown Core	141	59
Regional Commercial	0	0
General Commercial	136	74
Highway Service Commercial	91	38
Neighborhood Commercial	0	0
Medical/Professional Office	6	4
Light Industrial	979	668
Heavy Industrial	223	91
Public/Quasi-Public ³	375	35
Parks and Recreation	258	91
Other ⁴	36	--
Total Acres:	4,967	2,272
Source: CMCA, 2009		
Notes:		
1. Gross acres refers to the total area inclusive of streets.		
2. Areas currently designated Estate Residential are largely under-developed and for purposes of this EIR are considered vacant.		
3. Includes 145 acres associated with the wastewater treatment plant.		
4. Land not classified by a land use designation, such as canals.		

Figure 3.0-5: 2004 General Plan Land Use Diagram



Compact Development Alternative

The Compact Development Alternative is shown on Figure 3.0-6 and the development holding capacity is shown on Table 3.0-4. This alternative applies a higher average residential density (6.0 versus 4.0) to achieve a comparable level of population growth as the Jobs Emphasis Alternative, but using less land.

Table 3.0-4: Summary of The Compact Development Alternative			
Land Use Category	20 Year Growth Boundary Gross Acres ¹	40 Year Growth Boundary Gross Acres ¹	Total Gross Acres
Mixed-Use Hillside Development	0	0	0
Neighborhood Village ²	1,344	797	2,141
Estate Residential	176	0	176
Low Density Residential	1,303	0	1,303
Medium Density Residential	369	0	369
High Density Residential	58	0	58
Downtown Residential	203	0	203
Downtown Core	69	0	69
Regional Commercial	0	0	0
General Commercial	415	66	481
Highway Service Commercial	52	18	70
Neighborhood Commercial	0	0	0
Medical/Professional Office	6	0	6
Light Industrial	1,648	227	1,875
Heavy Industrial	153	0	153
Public/Quasi-Public	410 ³	11	422
Parks/Open Space ⁴	258	0	258
Other ⁵ :	36	43	79
Total Acres:	6,503	1,162	7,664
Source: CMCA, 2009			
- Gross acres refers to the total area inclusive of streets. - The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3. - Includes 145 acres associated with the wastewater treatment plant. - Does not include parkland required within areas designated Neighborhood Village or Mixed-Use Hillside Development required by policies LU-1.3 and LU-1.4, respectively. - Land not classified by a land use designation.			

Key attributes of the Plan are:

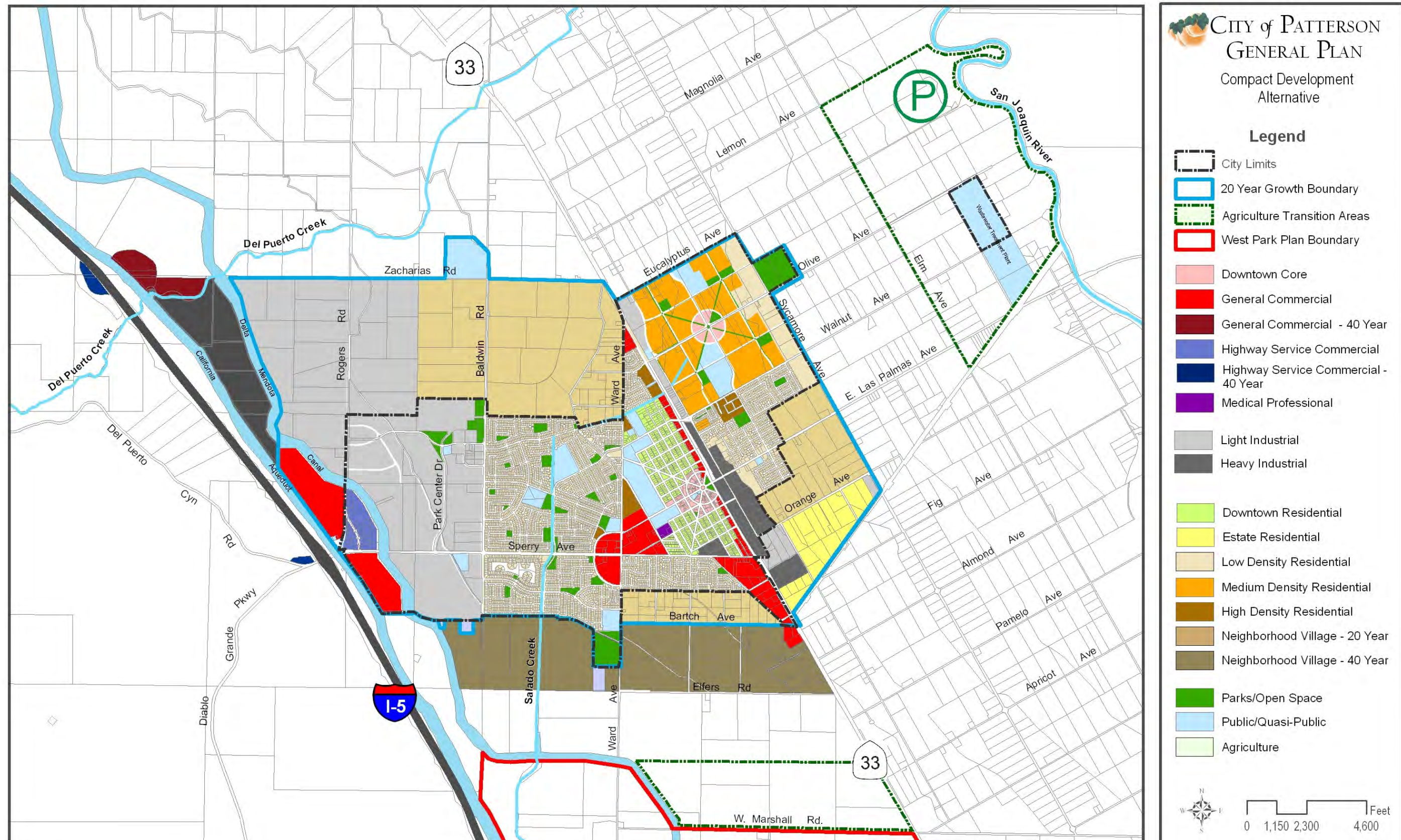
- The population holding capacity of the 20-year plan is about 46,360. The population of the 40-year plan is about 57,500.
- New residential neighborhoods are shown to the northeast of the Patterson Business Park but ending at Zacharias Road.
- Land between the canals is designated for industrial development under the 40-year plan;
- An area of about 40 acres is designated for General Commercial development at the westerly extension of Zacharias Road and I-5.
- No land for urban development is designated west of I-5 except for five acres of Highway Serving Commercial development west of the Sperry Avenue interchange and another 15 acres west of I-5 at Zacharias Road.
- The area between Interstate 5 and the California Aqueduct is shown as agriculture.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as industrial, a continuation of the Patterson Business Park. The area on the east side of Rogers Road north of the Business Park is designated for industrial development following the property lines north to Zacharias Road.
- The area south of the City and north of Elfers Road is designated for residential development in the 40-year Plan.
- The areas designated for future residential development do not extend beyond sycamore Avenue to the east.

The Compact Development Alternative is based on the following principles of 'Smart Growth':

- *Create A Range of Housing Opportunities and Choices.* Providing quality housing for people of all income levels is an integral component in any smart growth strategy.
- *Create Walkable Neighborhoods.* Walkable communities are desirable places to live, work, learn, worship and play, and therefore a key component of smart growth.
- *Encourage Community and Stakeholder Collaboration.* Growth can create great places to live, work and play -- if it responds to a community's own sense of how and where it wants to grow.
- *Foster Distinctive, Attractive Communities with a Strong Sense of Place.* Smart growth encourages communities to craft a vision and set standards for development and construction which respond to community values of architectural beauty and distinctiveness, as well as expanded choices in housing and transportation.
- *Make Development Decisions Predictable, Fair and Cost Effective.* For a community to be successful in implementing smart growth, it must be embraced by the private sector.
- *Provide a Mix of Land Uses.* Smart growth supports the integration of mixed land uses into communities as a critical component of achieving better places to live.
- *Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas.* Open space preservation supports smart growth goals by bolstering local economies, preserving critical environmental areas, improving our community's quality of life, and guiding new growth into existing communities.

- *Provide a Variety of Transportation Choices.* Providing people with more choices in housing, shopping, communities, and transportation is a key aim of smart growth.
- *Strengthen and Direct Development Towards Existing Communities.* Smart growth directs development towards existing communities already served by infrastructure, seeking to utilize the resources that existing neighborhoods offer, and conserve open space and irreplaceable natural resources on the urban fringe.
- *Take Advantage of Compact Building Design.* Smart growth provides a means for communities to incorporate more compact building design as an alternative to conventional, land consumptive development.

Figure 3.0-6: Compact Development Alternative



Jobs Emphasis Alternative

The Job Emphasis Alternative is shown on Figure 3.0-7. The development holding capacity for is provided in Table 3.0-5.

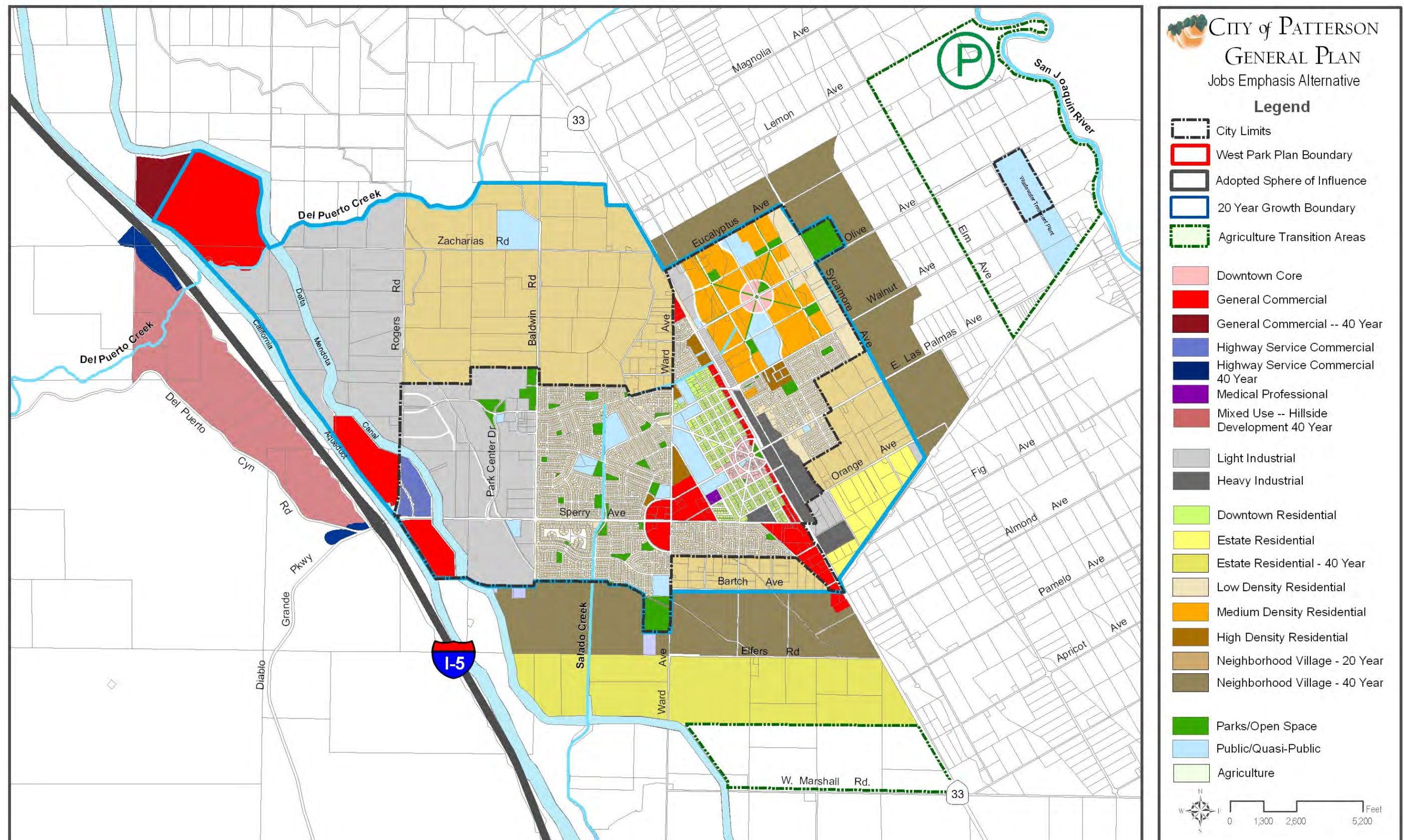
Table 3.0-5: Summary of The Jobs Emphasis Alternative			
Land Use Category	20 Year Growth Boundary Gross Acres ¹	40 Year Growth Boundary Gross Acres ¹	Total Gross Acres
Mixed-Use Hillside Development	0	650	650
Neighborhood Village	2,043	1,600	3,644
Estate Residential	176	862	1,038
Low Density Residential	1,303	0	1,303
Medium Density Residential	369	0	369
High Density Residential	58	0	58
Downtown Residential	203	0	203
Downtown Core	69	0	69
Regional Commercial	0	0	0
General Commercial	712	80	792
Highway Service Commercial	52	61	113
Neighborhood Commercial	0	0	0
Medical/Professional Office	6	0	6
Light Industrial	1,701	0	1,701
Heavy Industrial	153	0	153
Public/Quasi-Public ⁴	410	33	444
Parks and Recreation ⁵	258	0	258
Other ⁶	157	507	664
Total Acres:	7,671	3,794	11,465
Source: CMCA, 2009 - Gross acres refers to the total area inclusive of streets. - The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3. - The Mixed-Use Hillside Development land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.4. - Includes 145 acres associated with the wastewater treatment plant. - Does not include parkland required within areas designated Neighborhood Village or Mixed-Use Hillside Development required by policies LU-1.3 and LU-1.4, respectively. - Land not classified by a land use designation. Includes canals, Interstate 5 right-of-way and other land.			

The Jobs Emphasis Alternative accommodates a 20-year and 40-year population of 47,831 and 66,673, respectively which is closer to the amounts discussed by the Commission and Council in 2007. Under this alternative, job creation is emphasized with the designation of additional land for industrial development in the first twenty years extending west of Rogers Road north of the Patterson Business Park and between the canals. Under this alternative, the ratio of jobs to housing in the first 20-years could be as high as 2.3 jobs per dwelling unit, assuming all of the land designated for industrial and commercial development is built.

Key attributes of the Plan are:

- New residential neighborhoods are shown to the north of the Patterson Business Park and on the land north of Zacharias Road surrounding the high school site west of Highway 33 and west of the current City limits and south of Zacharias Road.
- The land west of I-5 is shown with a 'Mixed Use' designation which would accommodate housing and commercial development.
- Land between the California Aqueduct and the Delta Mendota Canal is shown as industrial in the 20-year growth boundary.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as industrial.
- The area south of Elfers Road has been designated Estate Residential.
- Also under this Plan, the areas designated for residential development to the east of the City extend to an area about mid way between Sycamore Avenue and Elm Avenue and included within the 40-year growth boundary. The areas designated for residential development to the south of the City are included in the 40-year growth boundary.

Figure 3.0-7: Jobs Emphasis Alternative



Planning Commission Environmental Review Alternative

The Planning Commission Environmental Review alternative is shown as Figure 3.0-8; the development holding capacity is summarized on Table 3.0-6. Highlights of the alternative include:

Table 3.0-6: Summary of The Planning Commission Environmental Review Alternative			
Land Use Category	20 Year Growth Boundary Gross Acres ¹	40 Year Growth Boundary Gross Acres ¹	Total Gross Acres
Mixed-Use Hillside Development	0	650	650
Neighborhood Village	3,646	922	4,568
Estate Residential	485	543	1027
Low Density Residential	1303	0	1303
Medium Density Residential	369	0	369
High Density Residential	139	0	139
Downtown Residential	203	0	203
Downtown Core	69	0	69
Regional Commercial	0	0	0
General Commercial	421	66	487
Highway Service Commercial	52	61	113
Neighborhood Commercial	0	0	0
Medical/Professional Office	6	0	6
Light Industrial	2,033	92	2,124
Heavy Industrial	153	0	153
Public/Quasi-Public	410 ⁴	33	443
Parks and Recreation ⁵	258	0	258
Other ⁶ :	292	241	533
Total Acres:	9,838	2,608	12,446
Source: CMCA, 2009 1. Gross acres refers to the total area inclusive of streets. 2. The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3. 3. The Mixed-Use Hillside Development land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.4. 4. Includes 145 acres associated with the wastewater treatment plant. 5. Does not include parkland required within areas designated Neighborhood Village or Mixed-Use Hillside Development required by policies LU-1.3 and LU1.4, respectively. 6. Land not classified by a land use designation. Includes canals, Interstate 5 right-of-way and other land.			

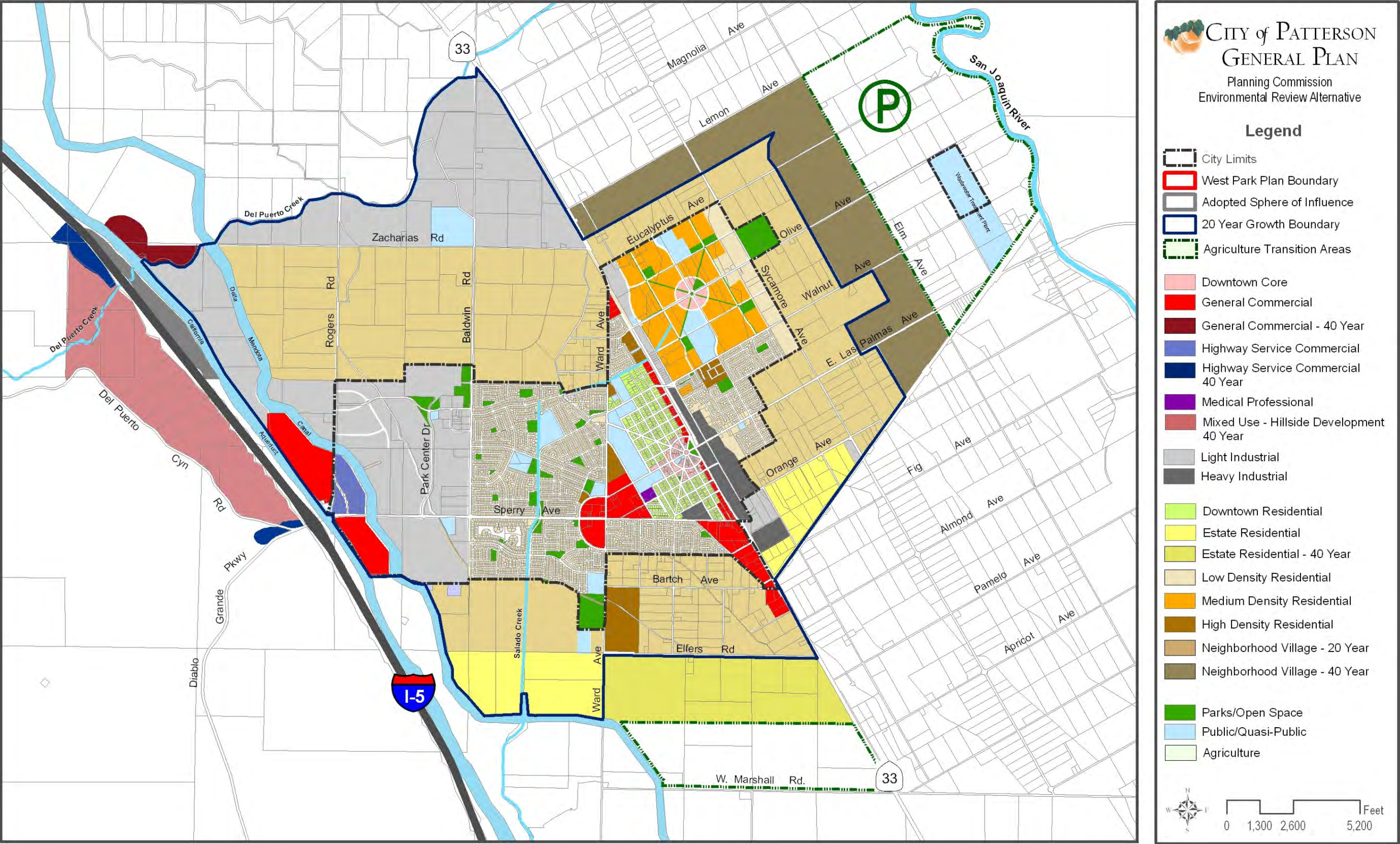
Key attributes of the Plan are:

- The population holding capacity of the 20-year plan is about 64,389. The population of the 40-year plan is about 75,863.
- New residential neighborhoods are shown to the north and west of the current City limits and south of Zacharias Road. Residential is also extended to the east to Elm Avenue.
- North of Zacharias and south of Del Puerto Creek is designated for additional industrial development, including the land surrounding the future site of Patterson High School.
- Land between the canals is designated for additional commercial development nearest the Sperry Avenue interchange along Rogers Road, and at the westerly extension of Zacharias Road where a new freeway interchange may be located.
- Between these two commercial nodes is land designated for industrial development.
- The area west of I-5 is shown with a 'Mixed Use' designation which would accommodate housing and commercial development.
- A portion of the area between Interstate 5 and the California Aqueduct is shown as industrial in the 40-year plan.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as residential.
- The area south of Elfers Road has been designated Estate Residential with a cluster subdivision requirement.
- The resulting ratio of jobs to housing for the 20-year plan is about 1.37, and about 1.13 for the 40-year plan. This means there would be more jobs in Patterson than dwelling units in both the 20-year and 40-year plans, assuming all of the land designated for commercial and industrial development is consumed and deducting 30 percent to account for part-time jobs.

This alternative is identical to the recommendations of the General Plan Advisory Committee, with the following exceptions:

- The Mixed Use area west of I-5 has been included in the 40-year planning growth boundary.
- The retail commercial area at the I-5/Zacharias Road has been reduced in size to about 40 acres.

Figure 3.0-8: Planning Commission Environmental Review Alternative



Comparison of Alternatives -- Acres Devoted To Urban Land Uses

Table 3.0-7 provides a comparison of the acreage devoted to different land use categories under each alternative.

Table 3.0-7: Comparison of Alternatives By Land Use Category, 20- and 40-Year Planning Growth Boundaries Combined (Gross Acres ¹)				
Land Use Category	No Project – 1992 General Plan	Compact Development	Jobs Emphasis	PC Env. Review Plan
Mixed-Use Hillside Development ²	0	0	650	650
Neighborhood Village ³	0	2,141	3,644	4,568
Estate Residential	388	176	1,038	1027
Low Density Residential	1684	1,303	1,303	1303
Medium Density Residential	389	369	369	369
High Density Residential	58	58	58	139
Downtown Residential	203	203	203	203
Downtown Core	141	69	69	69
Regional Commercial	0	0	0	0
General Commercial	136	481	792	487
Highway Service Commercial	91	70	113	113
Neighborhood Commercial	0	0	0	0
Medical/Professional Office	6	6	6	6
Light Industrial	979	1,875	1,701	2124
Heavy Industrial	223	153	153	153
Public/Quasi-Public ⁴	375 ⁴	422	444	443
Parks and Recreation ⁵	258	258	258	258
Other ⁶	36	79	664	533
Total Acres:	4,967	7,664	11,465	12,446
Source: CMCA, 2009				
Notes:				
1. Gross acres refers to the total area inclusive of streets.				
2. The Mixed-Use Hillside Development land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.4.				
3. The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3.				
4. Includes 145 acres associated with the wastewater treatment plant.				
5. Does not include parkland required within areas designated Neighborhood Village or Mixed-Use Hillside Development required by policies LU-1.3 and LU1.4, respectively.				
6. Land not classified by a land use designation. Includes canals, Interstate 5 right-of-way and other land.				

Circulation Diagram

Circulation Plan Diagram and Standards

The Circulation Plan Diagram (Figure 3.0-9) depicts the official classification of existing and proposed streets and roads within the Patterson Study Area. The following paragraphs define the various types of roadways in the classification system.

Local Roadways are intended to serve adjacent properties only. They carry very little, if any, through-traffic, and generally carry very low traffic volumes. While normally discontinuous in alignment, many of Patterson's local roadways are laid out in a grid system, making through-travel possible, but not desirable. Speed limits on local roadways normally do not exceed 25 miles per hour. Not all local roadways are depicted on the Circulation Plan Diagram. New local roadways shall have 50-to-60 foot rights-of-way.

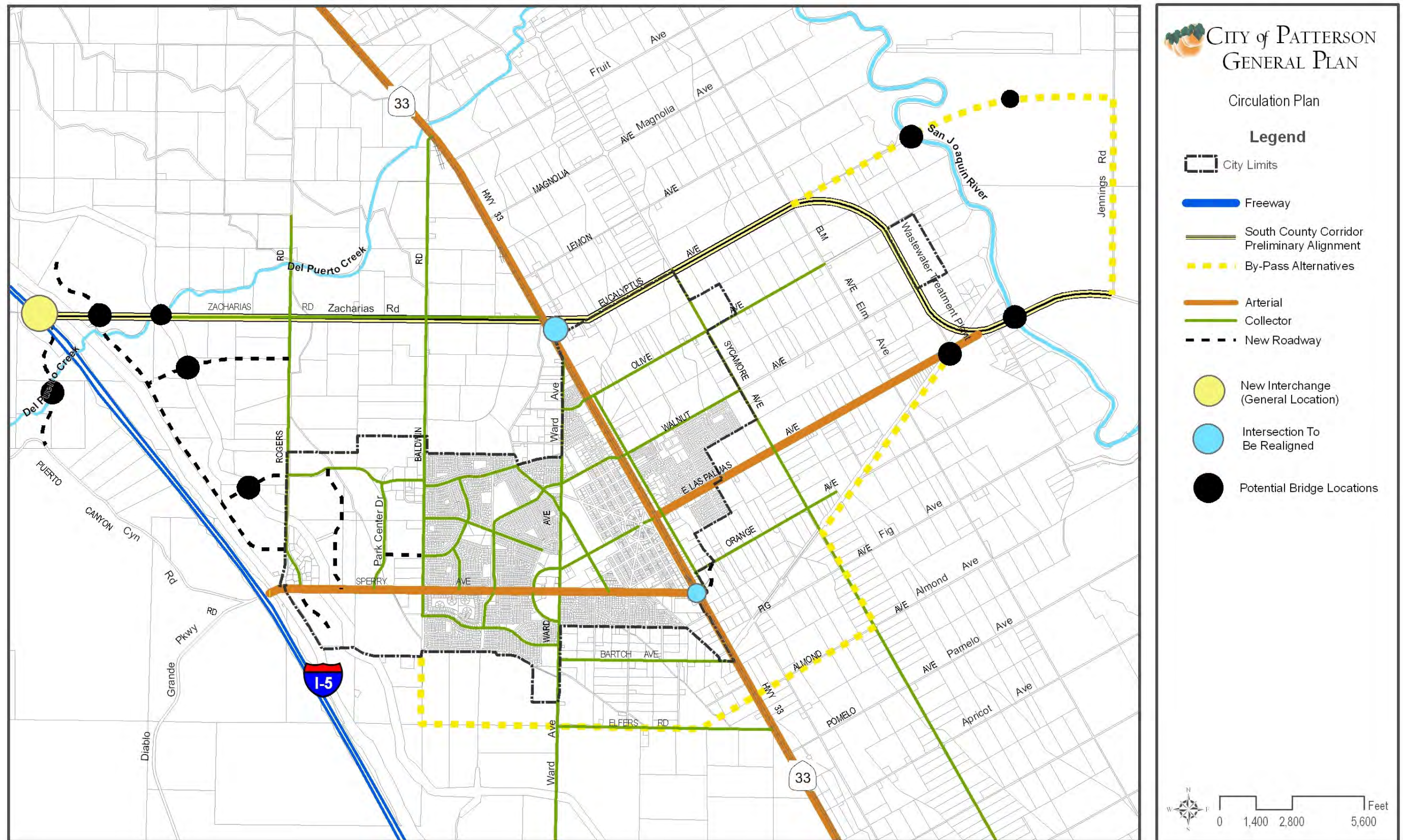
Collector Roadways are intended to "collect" traffic from local roadways and carry it to roadways higher in the street classification hierarchy (e.g., arterials). Collector roadways also serve adjacent properties. They generally carry light to moderate traffic volumes, and speed limits are typically maintained in the 25-to-35 miles per hour range. Roadways designated as collectors on the Circulation Plan Diagram include (among others), "M" Street, "E" Street, Salado Avenue, Walnut Avenue, Hartley Street, First Street, Ninth Street, Poppy Avenue, and Ward Avenue. New collectors shall have 60-to-70 foot rights-of-way.

Arterial Roadways are fed by local, collector, and minor arterial roadways, provide for cross-town and regional travel, and carry larger volumes of traffic. They are divided roadways of four or six lanes with a large median area which is used for auxiliary lane purposes at intersections. There should be no direct access to adjacent properties unless no reasonable alternatives exist. Such direct access should be limited to right turn-in and right turn-out movements only. Speed limits on arterial roadways are typically at least 40 miles per hour. Roadways classified as major arterials on the Circulation Plan Diagram include Second Street (Highway 33) and East Las Palmas Avenue, and Sperry Avenue. Arterial roadways shall have 100-foot rights-of-way.

Expressways serve the same function as arterial roadways, but provide capacity and safety advantages over arterials because they have higher design standards, greater access restrictions, and greater freedom from cross-traffic. Expressways are designed to remove longer-distance, through-traffic from arterials, freeing them to carry shorter distance trips. Expressways shall have 110-foot rights-of-way.

Freeways are intended to serve both intra-city and inter-city travel. They provide no service to adjacent properties, but rather are fed traffic from collector or arterial roadways through the use of access ramps and, therefore, do not have at-grade intersections. Freeways provide connections to other regional highways and are capable of carrying heavy traffic volumes. Speed limits on freeways are usually the highest allowed by law. Only Interstate 5 serves this function in Patterson.

Figure 3.0-9: Circulation Plan Diagram



Assumptions for Residential Development and Population Growth

Residential Expansion Areas

The Draft Policy Document recommends two new land use categories that will be applied to residential expansion areas, *Neighborhood Village* and *Mixed-Use Hillside Development*. The Draft Policy Document states that these will be treated as holding designations until the actual range of land uses is determined through completion of a planned development or specific plan. Policies of the Draft Policy Document set forth target land use requirements for Neighborhood Village and Mixed-Use Hillside areas which are intended to result in neighborhoods exhibiting the characteristics described above in the Development Strategy. The target land use requirements are set forth in the tables provided below.

Table LU-1. Target Land Use Requirements for Areas Designated <i>Neighborhood Village</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	5% of total ⁴
Low Density Residential	50% - 60% of total ⁴
Medium Density Residential	13% - 17% of total ⁴
High Density Residential	4% - 6% of total ⁴
Neighborhood Commercial	10 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Public/Quasi-Public ³	As determined by service provider
Notes: 1. Total acreage of the project site before subdivision. 2. Acreage of parkland exclusive of drainage detention basins. 3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities. 4. Acreage exclusive of affordable housing inclusionary requirements. Source: Draft Policy Document, policy LU-1.3	

Table LU-2. Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider
Notes: 1. Total acreage of the project site before subdivision. 2. Acreage of parkland exclusive of drainage detention basins. 3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities. 4. Acreage exclusive of affordable housing inclusionary requirements. Source: Draft Policy Document, policy LU-1.4	

The percentages recommended by Tables LU-1 and LU-2 have been applied to the acres designated Neighborhood Village and Mixed-Use Hillside Development. The resulting acres were then distributed to their various land use categories.

Assumptions for Residential Density

The draft Policy Document recommends a range of allowable residential densities as shown in Table 3.0-8. However, because of market forces, the construction of streets, parks and other factors, the maximum density is rarely achieved. Table 3.0-9 provides a summary of the assumptions used for average residential density for each residential category which takes these factors into consideration.

Table 3.0-8: Recommended Dwelling Units Per Gross Acre, By Land Use Category	
Land Use Designation	Range of Allowable Density (units per gross acre)
Estate Residential	1 unit per 0.5 acres to 1 unit per 3.0 acres
Low Density Residential	1.1 – 5.0
Medium Density Residential	5.1 – 12.0
High Density Residential	12.1 – 20
Downtown Residential	3.1 – 10.0
Source: CMCA, 2009 and 2009 Draft Policy Document	

Table 3.0-9: Assumptions for Average Dwelling Units Per Gross Acre

Land Use Designation	No Project – 1992 General Plan	Compact Development	Jobs Emphasis	PC Env. Review Plan
Estate Residential	0.5	0.5	0.5	0.5
Low Density Residential	4	6	4	4
Medium Density Residential	6	8	6	6
High Density Residential	12	16	12	12
Downtown Residential	6	6	6	6
Source: CMCA, 2009 and 2009 Draft Policy Document				

Assumptions for Persons Per Dwelling Unit

Table 3.0-10 provides a summary of assumptions for the number of persons per dwelling unit.

Table 3.0-10: Assumptions for Persons Per Dwelling Unit

Land Use Designation	No Project – 1992 General Plan	Compact Development	Jobs Emphasis	PC Env. Review Plan
Estate Residential	3.0	3.0	3.0	3.0
Low Density Residential	3.0	3.0	3.0	3.0
Medium Density Residential	2.5	2.5	2.5	2.5
High Density Residential	2.5	2.5	2.5	2.5
Downtown Residential	2.75	2.75	2.75	2.75
Source: CMCA, 2009 and 2009 Draft Policy Document				

Existing and Projected Housing Stock

Table 3.0-11 compares the existing housing stock as provided in the City's draft 2009 General Plan Housing Element and estimates provided by the California Department of Finance with an estimated number of units added during the twenty-year and forty-year growth boundaries for each alternative and based on the land use diagrams and corresponding acreages for residential development. Figure 3.0-10 shows these relationships graphically.

Figure 3.0-10: Comparison of Dwelling Units Accommodated By Each Alternative

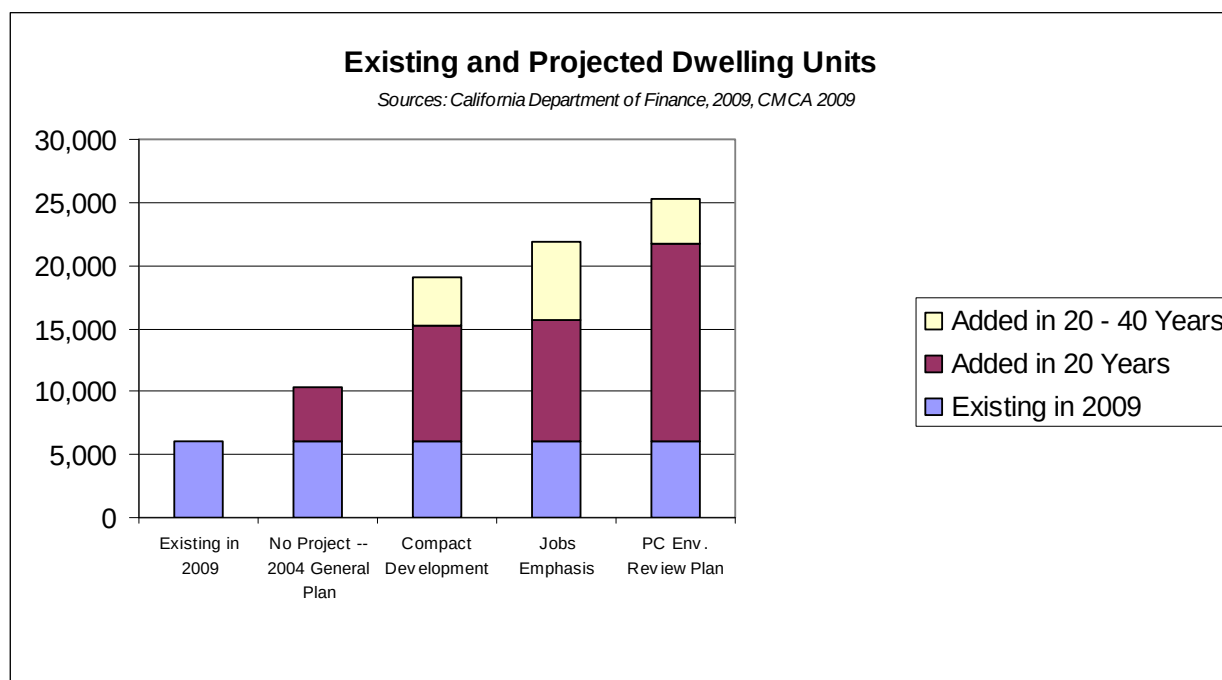


Table 3.0-11: Existing and Projected Dwelling Units, By Land Use Alternative

Land Use Designation ¹	Existing ²	No Project – 1992 General Plan		Compact Development		Jobs Emphasis		PC Env. Review Plan	
		Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years
Estate Residential	361	542	--	478	498	496	1,136	688	1,157
Low Density Residential	5,107	7,169	--	9,522	11,851	9,653	13,171	12,699	14,894
Medium Density Residential	235	2,163	--	3,631	4,501	3,870	5,201	5,149	5,925
High Density Residential	63	231	--	1,281	1,902	1,451	2,402	2,910	3,372
Downtown Residential	241	241	--	241	241	241	241	241	241
Totals:	6,007	10,345	--	15,153	18,992	15,711	22,151	21,687	25,589
Notes: 1. Includes residential components of areas designated <i>Neighborhood Village</i> and <i>Mixed-Use Hillside Development</i> . 2. Existing dwelling units as of January, 2009. Sources: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009; CMCA, 2009									

Future Population

Table 3.0-12 compares existing (2009) and projected population for each alternative for the twenty- and forty-year growth boundaries.

Table 3.0-12: Existing and Projected Population			
Alternative	Existing (2009) ¹	Total Population In 20 Years ²	Total Population in 40 Years ²
No Project – 1992 General Plan	21,229	33,196	33,196
Compact Development	21,229	46,360	57,510
Jobs Emphasis	21,229	47,831	66,673
PC Env. Review Plan	21,229	64,389	75,863
Notes:			
1. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009			
2. CMCA, 2009			

The relationships provided in Table 3.0-12 are illustrated by the following figure.

Figure 3.0-11: Comparison of Populations

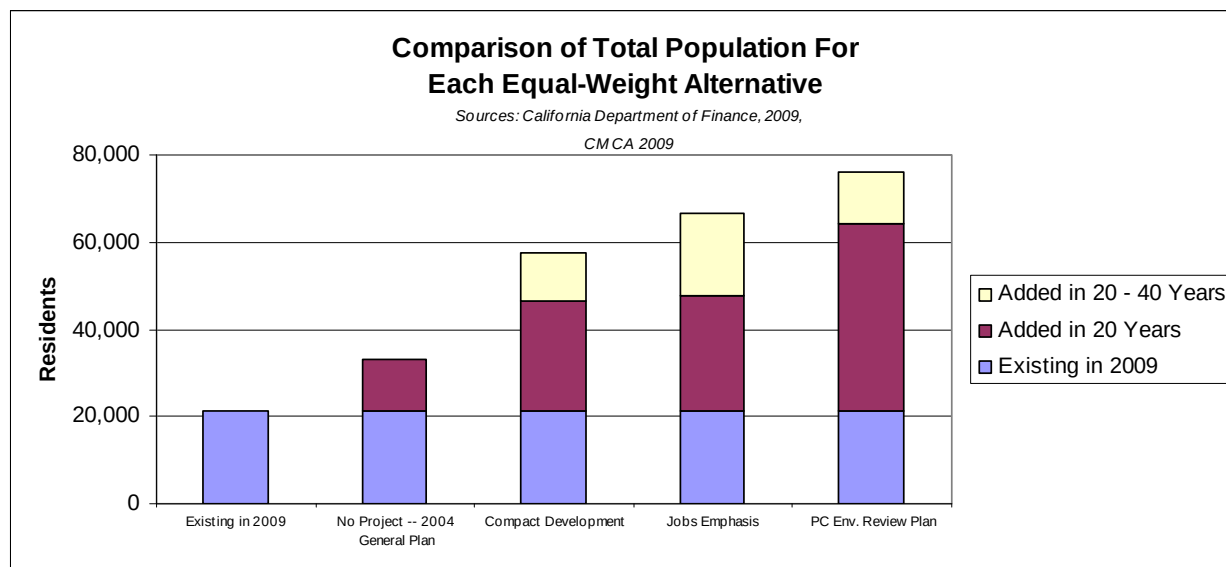
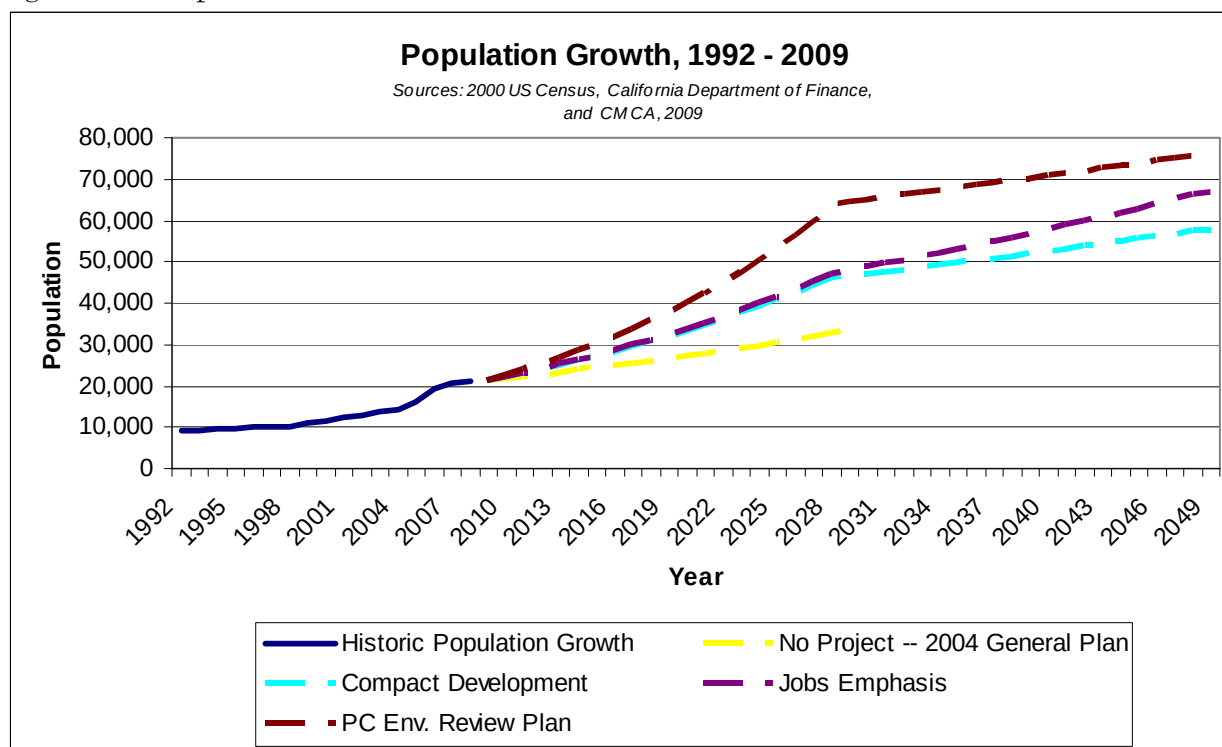


Figure 3.0-12 compares the projected population accommodated by each alternative with historic population growth from 1992.

Figure 3.0-12: Population Growth



As shown in Figure 3.0-12, the City's population grew at an average annual rate of about 6 percent from 1992 to 2007. If that rate were to continue for the next twenty years, the City's population in 2030 would be about 75,000 residents which exceeds the future populations assumed for each alternative. Table 3.0-13. provides a summary of the assumed average annual population growth rates for each alternative.

Table 3.0-13: Average Annual Population Growth Rates By Alternative		
Alternative	Population Growth Rate For First 20 Years	Population Growth Rate For 20 to 40 Years
1992 General Plan	2.3%	n/a
Compact Plan	4.0%	1.1%
Jobs Emphasis Plan	4.1%	1.7%
PC EIR Plan	5.7%	0.8%
Source: CMCA, 2009		

Commercial and Industrial Development

Table 3.0-14 provides an estimate of future commercial and industrial development by applying floor area ratios recommended by the draft Policy Document to the acreage designated for additional non-residential development which are presented in Table 3.0-15. The floor area ratios assumed for estimating future development have been reduced to account for required building setbacks, parking lot coverage and other site development requirements.

Table 3.0-14: Floor Area Ratios for Non-Residential Development		
Land Use Category	Maximum Floor Area Ratio By Land Use Category ¹	Floor Area Ratios For Future Development
Neighborhood Commercial	0.35	0.25
Highway Service Commercial	0.40	0.25
Downtown Core	2.00	0.25
General Commercial	0.40	0.30
Medical	0.40	0.25
Light Industrial	0.50	0.20
Heavy Industrial	0.50	0.20
Notes:		
1. Source: 2009 Draft Policy Document		

The relationships quantified in Table 3.0-14 are illustrated by Figures 3.0-13 and 3.0-14, below.

Figure 3.0-13: Projected Industrial Floor Area

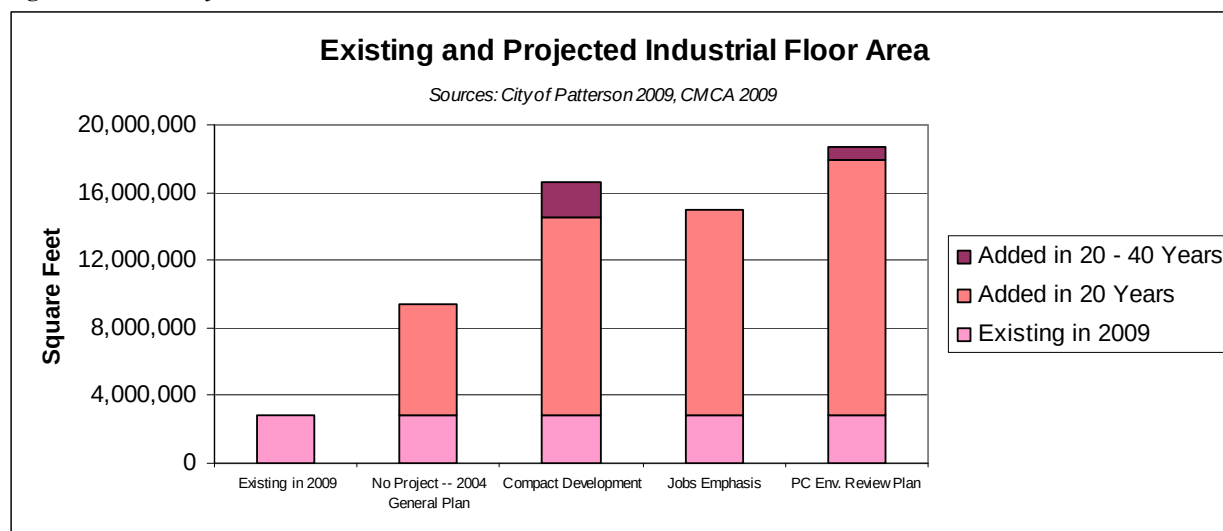


Figure 3.0-14: Projected Commercial/Retail Floor Area

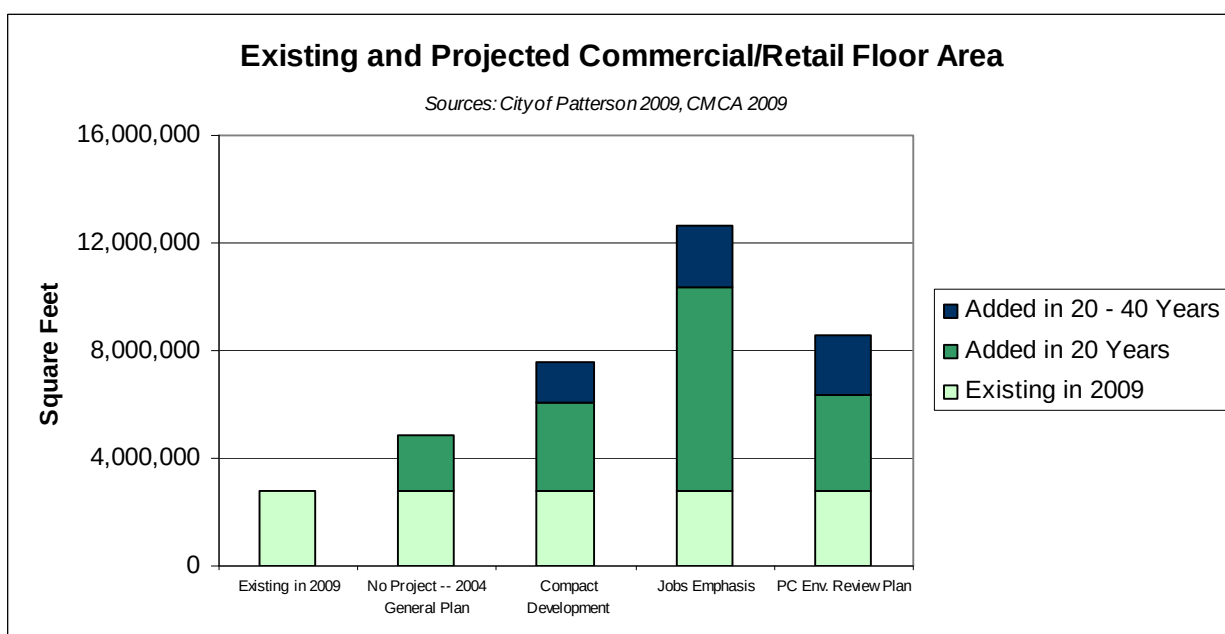


Table 3.0-15: Existing and Projected Commercial and Industrial Development
(Square Feet)

Land Use Designation ¹	Existing ²	No Project – 1992 General Plan	Compact Development		Jobs Emphasis		PC Env. Review Plan	
		Total In 20 Years	Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years
Downtown Core	876,726	1,513,316	1,060,509	1,060,509	1,060,509	1,060,509	1,060,509	1,060,509
Regional Commercial	0							
General Commercial	1,047,552	1,727,838	3,269,993	4,402,727	7,509,383	8,557,306	3,325,401	4,373,324
Highway Service Commercial	874,726	1,456,689	1,361,620	1,667,237	1,375,668	2,435,570	1,375,668	2,435,570
Neighborhood Commercial	762,505		273,672	340,573	289,691	471,090	470,015	581,416
Medical/Professional Office	115,217	156,381	115,217	115,217	115,217	115,217	115,217	115,217
Total:	2,800,000	4,854,224	6,081,011	7,586,263	10,350,468	12,639,691	6,346,810	8,566,036
Light Industrial	1,723,367	5,818,571	13,262,672	15,240,296	13,724,408	13,724,408	16,593,357	17,393,032
Heavy Industrial	1,103,869	796,277	1,322,540	1,322,540	1,322,540	1,322,540	1,322,540	1,322,540
Total:	2,827,236	9,442,083	14,585,213	16,562,837	15,046,949	15,046,949	17,915,897	18,715,572
Notes: 1. Source: 2009 draft Policy Document 2. Existing floor area as of January, 2009 Sources: City of Patterson and CMCA, 2009								

Employment

Table 3.0-16 provides an estimate of future employment for each alternative. Future employment was estimated by multiplying the remaining vacant acres by the corresponding employment per acre for full time employment. The relationships quantified in Table 3.0-16 are illustrated below in Figure 3.0-15.

Figure 3.0-15: Projected Employment

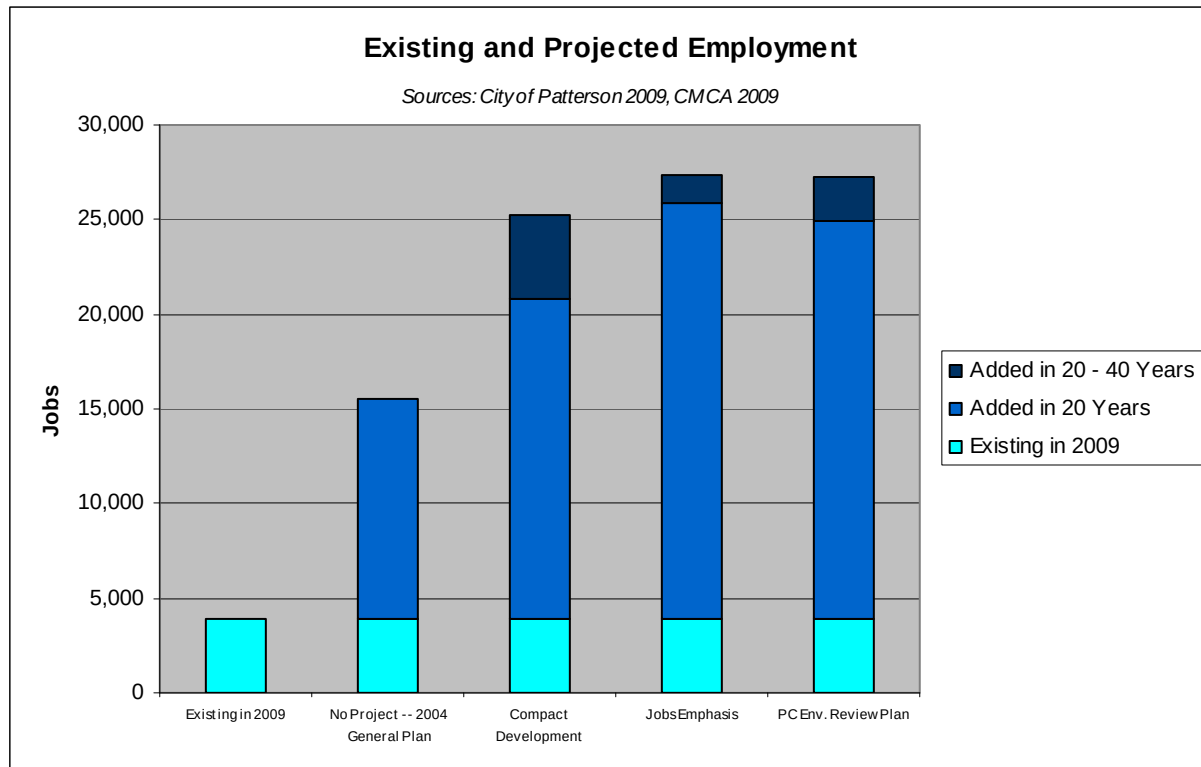


Table 3.0-16: Existing and Projected Employment By Land Use Category

Table 3.0-16: Existing and Projected Employment By Land Use Category									
Land Use Designation ¹	Employment Per Acre ²	Existing ³	No Project – 1992 General Plan	Compact Development		Jobs Emphasis		PC Env. Review Plan	
			New Employees In 20 Years ⁴	New Employees In 20 Years	Total Employees In 40 Years	New Employees In 20 Years	Total Employees In 40 Years	New Employees In 20 Years	Total Employees In 40 Years
Downtown Core	14	277	821	239	239	239	239	239	239
Regional Commercial		0							
General Commercial		320	1,034	2,686	3,900	7,228	8,351	2,746	3,868
Highway Service Commercial		330	526	404	649	422	1,273	422	1,273
Neighborhood Commercial		0	0	352	406	372	518	604	694
Medical/Professional Office		33	53	0	0	0	0	70	70
Light Industrial	10	1,814	6,679	13,245	15,515	13,775	13,775	17,068	17,986
Heavy Industrial		900	914	251	251	251	251	251	251
Public/Quasi-Public	10	240	600	400	500	400	500	400	500
Existing:			3,914	3914	--	3914	--	3914	--
Total Employment:		3,914	14,541	21,491	25,374	26,601	28,821	25,714	28,796
Notes: 1. Source: 2009 draft Policy Document 2. Full time employment per acre of developed land 3. Existing employment as determined by the City of Patterson, 2009 4. Remaining vacant acres times employment per acre. Sources: City of Patterson and CMCA, 2009									

Development Holding Capacities

By applying the various assumptions described above, the development “holding capacity” for each alternative under consideration by this EIR can be determined. Holding capacity is the number of dwelling units, commercial and industrial floor space, population and employment that can be accommodated based on the amount of land designated for these uses. Table 3.0-17 provides a summary of the development holding capacities for each alternative.

Table 3.0-17: Summary Development Holding Capacity of Equal Weight Alternatives

Attributes	No Project No Build	No Project -- Buildout of 1992 Plan	Compact Development		Jobs Emphasis		PC Env. Review Plan	
		Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	6,007	10,345	15,153	18,992	15,711	22,151	21,687	25,589
Population	21,229	33,196	46,360	57,510	47,831	66,673	64,389	75,863
Commercial Floor Area	2,800,000	4,854,224	6,081,011	7,586,263	10,350,468	12,639,691	6,346,810	8,566,036
Industrial Floor Area	2,827,236	9,442,083	14,585,213	16,562,837	15,046,949	15,046,949	17,915,897	18,715,572
Services Floor Area	3,027,420	3,721,984	5,205,420	5,749,920	5,205,420	5,749,920	5,205,420	5,749,920
Jobs	3,914	14,541	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	0.65	1.41	1.42	1.34	1.69	1.30	1.19	1.13

Notes:

1. Source: CMCA, 2009

References

US Census 2000

City of Patterson, 1992 General Plan Policy Document and Land Use Diagram

CMCA 2009 Draft Policy Document and Land Use Alternatives

CMCA, 2007 General Plan Background Report

State of California CEQA Guidelines

State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009;

4.0 SETTING

This chapter introduces the approach employed in the topical sections of this EIR assess the project-specific and cumulative impacts resulting from implementation of the draft General Plan Equal Weight Alternatives. Please refer to the individual sections 5.1 through 5.15 for the specific assumptions and methodologies used for each subject.

Baseline Environmental Conditions

Section 15125(a) of the CEQA Guidelines requires that an EIR include a description of the physical environmental conditions in the vicinity of a project as they exist at the time the Notice of Preparation is published. The Guidelines also specify that this description of the physical environmental conditions should serve as the baseline physical conditions by which a lead agency determines whether the impacts of a project are considered significant.

The environmental setting/baseline conditions of the City of Patterson and the City's General Plan Study Area are described in each of the topical technical sections of this EIR (see Sections 5.1 through 5.15). In general, these sections describe the conditions as they existed when the Notice of Preparation for the project was released on February 11, 2010.

A key aspect of the baseline conditions is previously approved and reasonably-foreseeable development that will contribute to the cumulative impacts discussed under each topical section. Table 4.0-1 provides a summary of previously approved development within the City of Patterson and its General Plan Study Area as of the date of the Notice of Preparation.

Existing Land Use

Table 4.0-1 provides a summary of developed acreage within the City's current General Plan area by General Plan land use category as of January, 2009. According to the California Department of Finance, the City's January, 2009 population was about 21,229 and the number of dwelling units was about 6,000.

Table 4.0-1: Existing Land Use Within the 1992 General Plan Area	
Land Use Category	Developed Acres
Estate Residential	361
Low Density Residential	831
Medium Density Residential	16.5
High Density Residential	31.62
Downtown Residential	128.6
Downtown Core	37.96
General Commercial	33.09
Highway Service Commercial	45.46
Neighborhood Commercial	0.00
Medical/Professional Office	5.00
Light Industrial	166.6
Heavy Industrial	106.7
Public/Quasi-Public	309.4
Parks and Recreation	109.4
Other (streets, lakes, canals, etc.)	620
Total Acres:	2,811
Source: CMCA, 2009	

Regional Development

Previously approved and reasonably foreseeable development anticipated in the region surrounding the City will contribute to the cumulative impacts associated with those associated with the draft General Plan. Table 4.0-2 provides a summary of the development holding capacities of General Plans of cities and counties in the regional. Table 4.0-3 lists projects within the City of Patterson and other large-scale development projects in the region likely to contribute to cumulative impacts in Patterson which are described further below.

West Park Specific Plan

The West Park Specific Plan covers an area in the unincorporated County of about 4,800 acres that includes the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility (CLAF) and approximately 3,276 acres of undeveloped land surrounding the former CLAF. The project site is located south of the City of Patterson between Interstate 5 and the California Aqueduct and State Route 33. The Specific Plan envisions the following major components:

- development of an inland port and short-haul rail service to and from the Port of Oakland;
- development of industrial, business park, and distribution land uses on approximately 4,800 acres, including the former CLAF;
- development of a general aviation airport on the former CLAF property, and
- various infrastructure and public facility improvements to support the project.

Buildout of the proposed project would occur in four phases over a period of 30 years. Initial development under Phase 1 of the proposed project would include between four and five million square feet of building space, including 250,000 to 500,000 square feet of speculative building space. Among improvements that would be required to support Phase 1 of the project are interim water and wastewater facilities and a new fire station occupying approximately one acre. The precise location of these facilities on the project site has not yet been determined.

A project description and Notice of Preparation of a draft environmental impact report was distributed by Stanislaus County for the project in August, 2008.

Diablo Grande

Diablo Grande is planned in the unincorporated foothills southwest of Patterson, several miles west of Interstate 5 on Oak Flat Road. The project covers approximately 16,800 acres, although much of the area would remain undeveloped. Plans for the community include five golf courses, upscale condominiums, and 10-acre home sites. Other amenities include equestrian trails as well as hotel and restaurant accommodations for tourists and corporate executives attending retreat-like conferences.

The Diablo Grande Specific Plan was originally submitted to Stanislaus County in December of 1990. The Specific Plan was subsequently amended many times in response to environmental issues as they arose. Ultimately, the Specific Plan was adopted by the Board of Supervisors on October 26, 1993. Since the Diablo Grande project was approved in October of 1993, both Phase 1 golf courses and the clubhouse have been constructed. In addition, a large portion of the project entry road has been constructed along with the pump stations and water lines to serve the Diablo Grande project.

Following approval of the Specific Plan, a lawsuit was filed challenging the adequacy of the final EIR. The courts ultimately decided that the EIR was sufficient in all respects with the exception of the discussion of long-term water sources. The developer then prepared a Water Resources Plan which sets forth eight (8) possible sources of water for the Diablo Grande project. A Supplemental EIR was prepared based on this Water Resources Plan. The Diablo Grande Specific Plan, original EIR and Supplemental EIR were all readopted in 2006 to comply with the findings of the District Court and the Order of the Superior Court, and to update the Plan to current (2006) conditions.

Certain changes were incorporated into the revised plan adopted in 2006. The main changes to the Specific Plan from the 1993 adopted Plan are:

- The Lakeborough neighborhood has been omitted from all of the discussions;
- The water discussion has been revised so that it is consistent with the Supplemental EIR;
- The onsite road standards have been revised consistent with discussions with the County Department of Public Works;
- Numerous revisions have been made to clarify timeframes, dates and improvements consistent with the setting in 2006; and
- Methods of implementing the Specific Plan have been revised to make them more understandable and clear.

The revised Plan would accommodate as many as 5,000 dwelling units in addition to two golf courses, a shopping center, resort center, vineyards, and open space areas.

California High Speed Rail

The California High-Speed Rail Authority (Authority) was established in 1996 and is authorized and directed by statute to undertake the planning and development of a proposed statewide HST network that is fully coordinated with other public transportation services. The Authority adopted a Business Plan in June 2000, which reviewed the economic feasibility of an 800-mile-long HST system capable of speeds in excess of 200 miles per hour on a dedicated, fully grade separated state-of-the-art track. The Authority released an updated Business Plan in November 2008.

The Authority and FRA selected as the preferred alternative the Caltrain/UPRR corridor between San Jose and Gilroy to connect with the San Francisco to San Jose section, and from Gilroy to Merced they selected Pacheco Pass and Henry Miller Road corridor to connect with the Central Valley section of the HST system.

General Plans of Surrounding Jurisdictions

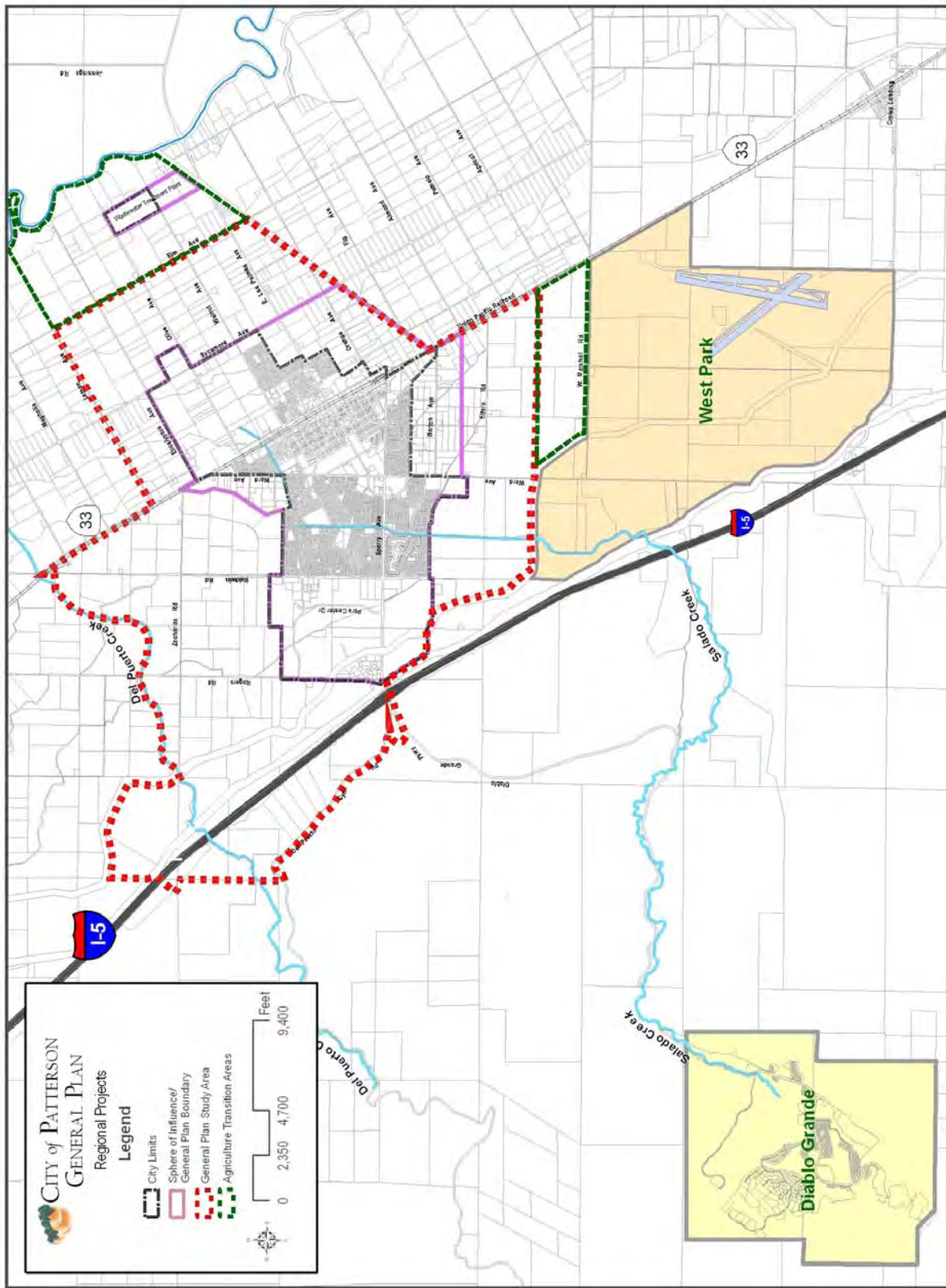
Table 4.0-2 provides a summary of future development accommodated by the adopted general plans of surrounding jurisdictions.

Table 4.0-2: Summary of General Plans of Surrounding Jurisdictions				
City	2009 Population ¹	Buildout Population ²	Buildout Year ²	Buildout Non-Residential Development ²
Ceres	42,998	Not Stated	2015	Not Stated
Hughson	6,193	9,100	2025	2,761,900 sq.ft.
Modesto	210,088	428,300	Beyond 2025	+/- 65,000,000 sq.ft.
Newman	10,739	45,703	2030	+/- 7,000,000 sq.ft.
Oakdale	19,608	51,621	2015	3,961 acres
Riverbank	21,168	52,000	2025	3,000,000 sq.ft.
Turlock	70,256	85,190	Not Stated	40,000,000 sq.ft.
Waterford	8,703	30,000	2025	174 acres
Unincorporated Stanislaus County	114,712	179,129 ³	Not Stated	Not Stated
Notes: 1. State of California, Department of Finance, E-1 population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2008 and 2009. Sacramento, California, May 2009. 2. Unless otherwise stated, the source is the adopted general plans for each jurisdiction. 3. Estimated by CMCA				

**Table 4.0-3: Previously Approved and Reasonably
Foreseeable Projects In The Region**

Project	Location	Acres	Type of Development	Status	Units/Building Square Feet
City of Patterson					
The Villages of Patterson	The area bounded by State Route 33, Walnut Avenue, Eucalyptus Avenue and Sycamore Avenue	692	Residential, commercial, industrial, civic	Approved in 2007	3,100 dwelling units 100,000 sq.ft. commercial 623,000 sq.ft. industrial 267,000 sq.ft. public
Patterson Logistics Center	North of Sperry Avenue east of the Delta Mendota Canal	77.24	Light industrial	Environmental review pending	1,270,333 sq.ft.
Westridge Business Park	Northwest corner of Sperry Avenue and Baldwin Road	121.09	Light industrial	Approved in 2007	1,323,000 sq.ft.
Walmart/Patterson Plaza	Southwest corner of Ward Avenue and Sperry Avenue	16.7	Retail center	EIR being prepared	178,000 sq.ft.
Southeast Industrial Annexation	South of Orange Avenue, east of State Route 33	54.3	Light industrial	Approved by City; awaiting action by LAFCo	630,000 sq.ft.
Mahaffey Plaza	Northeast corner of Ward Avenue and Sperry Avenue	35.2	Retail center	Approved in 2007	198,000 sq.ft.
Granger	West Patterson Business Park	125.6	Distribution center	Approved in 2009	800,000 sq.ft.
Stanislaus County					
Diablo Grande	West of Patterson about ten miles	16,800	Residential, commercial and recreation	Approved in 1993	5,000 dwelling units Shopping center, two golf courses
Westpark Specific Plan	South of Patterson at Crows Landing Airfield	3,276	Industrial business park, general aviation airport	Environmental review pending	4 – 5 million square feet of industrial floor space in Phase I
San Joaquin County					
Mountain House	Adjacent to the City of Tracy	4,784	Residential and commercial	Approved in 1993	16,000 dwelling units 12,000 jobs
Sources: City of Patterson, 2009 Diablo Grande Specific Plan, 2006 Stanislaus County Addendum to the Notice of Preparation for a Draft Environmental Impact Report for the West Park Specific Plan Project, June 25, 2008 Mountain House Master Plan, 2003					

Figure 4.0-1 Regional Projects



References

City of Patterson, 2009

Diablo Grande Specific Plan, 2006

Mountain House Master Plan, 2003

Stanislaus County Addendum to the Notice of Preparation for a Draft Environmental Impact Report for the West Park Specific Plan Project, June 25, 2008

State of California CEQA Guidelines

State of California, Department of Finance, E-1 population Estimates for Cities, Counties and the State with Annual Percent Change — January 1, 2008 and 2009. Sacramento, California, May 2009.

5.0 IMPACT ANALYSIS

Impact Analysis Sections

All topical sections are page numbered starting with the section number, and beginning each section on page one.

- 5.1 Land Use
- 5.2 Population Housing and Employment
- 5.3 Public Services
- 5.4 Water Supply
- 5.5 Wastewater
- 5.6 Transportation and Circulation
- 5.7 Air Quality and Climate Change
- 5.8 Noise
- 5.9 Geology and Soils
- 5.10 Biological Resources
- 5.11 Agricultural Resources
- 5.12 Hazards and Hazardous Materials
- 5.13 Hydrology and Water Resources
- 5.14 Visual and Aesthetics Resources
- 5.15 Cultural Resources

Appendices

Many of these sections have technical appendices. All of the appendices are located on the CD accompanying the EIR.

Environmental Analysis and Characterization of Impacts

Within the topical sections of this EIR, impacts are categorized according to their level of significance. Four categories of impacts are identified:

Significant and Unavoidable/Cumulatively Considerable

These impacts cannot be mitigated to a less than significant level. To approve a project resulting in significant and unavoidable impacts, the CEQA Guidelines require decision makers to make findings of overriding consideration that “...specific legal, technological, economic, social, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR...”

Potentially Significant

These impacts can be mitigated to a level of insignificance by measures identified in this EIR and the project description. When approving a project with significant but mitigable impacts, the decision-makers must make findings that changes or alternatives to the project have been incorporated that reduce the impacts to a less than significant level.

Less than Significant

Less than significant impacts are adverse but not significant.

Beneficial Impacts

Beneficial impacts are the environmental impacts of the implementation of the proposed Specific Plan that would result in positive change to the environment.

Organization of the Topical Discussions

The topical sections of this EIR are organized as follows.

Introduction

An introduction to the topic is provided along with a reference to relevant supporting studies.

Environmental Setting

This subsection provides a description of the physical conditions associated with the particular area of discussion, consistent with State CEQA Guidelines Section 15125. As discussed above, the existing setting is based on conditions as they existed when the NOP was released on February 11, 2010.

Regulatory Setting

This subsection identifies applicable federal, state, regional, and local plans, policies, laws, and regulations that apply to the particular area of discussion.

Standards of Significance

Standards of significance are identified and utilized to determine whether identified environmental effects are considered significant and require the application of mitigation measures. Appendix G of the CEQA Guidelines is the primary source of significance standards (or “thresholds”) for the analysis of each impact. In some cases, other pertinent standards or thresholds were used (e.g. Air Quality thresholds administered by the San Joaquin Valley Unified Air Pollution Control District).

Project Impacts and Mitigation Measures

The Project Impacts and Mitigation Measures subsection identifies direct and indirect environmental effects associated with implementation of each of the General Plan Alternatives. Where relevant, the discussion describes those impacts that are unique to a given alternative, as well as those common to each. Each environmental impact is identified numerically (e.g., Impact 5.1.1 –Division of Established Communities).

Methodology

The methodologies used to assess the project impacts is provided prior to the discussion of individual impacts and mitigation measures.

Draft General Plan Policy Response

Following the discussion of each impact is a discussion of the policy response provided in the draft General Plan that serves to mitigate the particular impact identified. Policy responses will be in the form of General Plan policies and implementation measures aimed at reducing or minimizing the identified environmental impact.

Where the analysis concludes that additional mitigation is required beyond that provided by the draft Policy Document, additional feasible programmatic mitigation in the form of new policies and/or implementation programs are recommended after which the impact discussion notes whether the impact has been mitigated to a less than significant level or remains significant and unavoidable.

Cumulative Setting, Impacts, and Mitigation Measures

This subsection is an analysis of the proposed General Plan's contribution to cumulative impacts to the environment. The analysis focuses on whether the draft General Plan's contribution is *cumulatively considerable* as defined by State CEQA Guidelines Section 15130). A cumulative impact occurs from the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355(b)). Accordingly, the cumulative setting includes related past, present, and reasonably foreseeable projects in the region. The approach to the consideration of cumulative impacts is provided in greater detail below.

Approach to the Consideration of Cumulative Impacts

Definition of Cumulative Setting

A lead agency has a duty to use reasonable efforts to discover, disclose and discuss related projects which are under the administrative jurisdiction of other city, state, and federal agencies. (See *id.* § 15130(b)(1)(A); *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 74, n.13.) With respect to cumulative impacts, a lead agency must evaluate related impacts from other "past, present, and reasonably foreseeable probable future projects," and must identify feasible, enforceable mitigation measures that could avoid or minimize the potentially significant impacts of a project, including cumulative impacts. (CEQA Guidelines, §§ 15126.4, 15355.) In general, the cumulative setting considered in this EIR is based on:

- **Local Adopted General Plans.** The existing land use plans in the region consisting of Stanislaus County and the cities of Turlock, Newman, Ceres, Modesto and Stockton.
- **Large-Scale Development Projects.** Consideration of large-scale proposed and approved development projects discussed above and listed in Table 4.0-3. This list is intended to describe large-scale projects from the recent past, present, and reasonably foreseeable future development activities in the Patterson region that, when considered with the draft General Plan, have the potential to have cumulatively considerable impacts. It is not intended to be an all-inclusive list of projects in the Patterson region.
- **Background Growth.** Consists of consideration of background traffic volumes and patterns on state highways (e.g., Interstate 5), background air quality conditions, and other associated environmental conditions that occur within the San Joaquin Valley region, both within and outside of the Study Area. Included in this category is the consideration of the effect of continued and intensification of major land use activities in the region, such as the Crows Landing Airfield, ongoing agricultural activities, and the conversion of open space and agricultural lands resulting from existing development patterns.

Each technical section of this EIR includes a description of the geographic extent of the cumulative setting based on the characteristics of the environmental issue under consideration as set forth in Section 15130(b) of the State CEQA Guidelines.

Consideration of Cumulative Impacts

Each topical section of this EIR considers whether the project's effect on anticipated cumulative setting conditions is *cumulatively considerable* (i.e., a significant effect). "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of

past projects, the effects of other current projects, and the effects of probable future projects (CEQA Guidelines, Section 15065(a)(3)). The determination of whether the project's impact on cumulative conditions is *considerable* is based on a number of factors including the consideration of applicable public agency standards as well as consultation with public agencies, and expert opinion.

The environmental effects of potential development of the Study Area as prescribed by each of the Equal-Weight alternatives are incorporated into the cumulative impact analysis in each topical section. Section 7.0, Cumulative Impacts Summary, provides a summary of the cumulative impacts associated with the draft General Plan.

References

References are provided at the end of each section.

Other Environmental Documents

This EIR uses information and analyses derived from previously prepared EIRs that are relevant to the consideration of environmental effects of the draft General Plan. The use of previously prepared environmental documents is supported by the State CEQA Guidelines (see Sections 15148 [Citation] and 15150 [Incorporation by Reference]). In addition to materials cited, the following EIRs have been used in this EIR and are incorporated herein by reference as if set forth in the entirety:

- City of Patterson, General Plan Final Environmental Impact Report, 1992.
- West Patterson Projects Final Environmental Impact Report, October, 2002
- Patterson Wastewater Master Plan and Diablo Grande Sewer Line Final Environmental Impact Report, October, 2003
- The Villages of Patterson Final Environmental Impact Report, September, 2006
- Creekside Annexation Final Environmental Impact Report, September, 1993
- Negative Declaration for the 2010 Draft General Plan Housing Element adopted March 16, 2010

These documents are available for review at the City Planning Department, 1 Plaza, Patterson, California.

Activities Undertaken Following Adoption of the General Plan

Although the 2010 General Plan does not authorize specific development projects, it designates areas appropriate for urban development for the next 40 years (buildout) in and around Patterson. Although the precise timeframe and site-specific nature of this development is unknown, the range of potential subsequent activities that may be expected to occur following adoption of the General Plan include the following:

- Construction activities on individual building sites which may include grading, excavation, the use of heavy machinery and equipment, and the transport and storage of building materials;
- The installation of water, wastewater collection, storm drainage infrastructure, which may include trenching, excavation and grading;
- The installation of electrical, natural gas, cable television and internet utilities;
- The construction of roadways, freeway ramps/interchange, and roadway bridges;

It should be noted that subsequent projects accommodated by the General Plan will be subject to project-specific environmental review as required by CEQA.

Important Terms Used Throughout This EIR

Study Area

The area around the current City limits which was studied for the purposes of identifying physical and regulatory constraints and suitable locations for additional urban development. The Study Area is shown on Figure 3.0-3.

Equal-Weight Alternatives

This EIR considers three General Plan alternatives, in addition to the No Project Alternative:

The Compact Development Alternative

The Jobs Emphasis Alternative, and

The Planning Commission Environmental Review Alternative (PC Env Review Alternative)

When referred to collectively throughout this EIR they are referred to as the *Equal-Weight Alternatives*.

20-Year and 40-Year Buildout Growth Boundaries

The 20-Year and 40-Year Growth Boundaries refer to land within each Equal-Weight Alternative designated for development within a 20-year and a 40-year period. The 20-year growth boundary corresponds to development expected to occur by the year 2030. The 40-year growth boundary corresponds to development expected to occur between 2030 and 2050 which is premised upon full buildout of the General Plan.

1992 General Plan

The currently adopted General Plan for the City of Patterson. The land use designations for the 1992 General Plan are shown on Figure 3.0-3.

5.1 LAND USE/CONSISTENCY

WITH ADOPTED PLANS AND POLICIES

Introduction

This section describes the current land use patterns and development trends within the City of Patterson and the regulatory planning environment under which future land use planning will occur. It identifies land use policies proposed in each of the three alternatives, the potential impacts of those alternatives, and identifies mitigation measures for significant impacts. The reader is referred to Section 5.12 Hazards and Hazardous Materials for a discussion of consistency with adopted Airport Land Use Plans.

Setting

Regional Setting

Patterson occupies about 6.6 square miles in western Stanislaus County, approximately 15 miles southwest of Modesto. The San Joaquin River lies three miles to the east and Interstate 5 passes about three miles to the west. Farther west lies the Diablo Mountain Range. Figure 5.1-1 shows Patterson's general location.

Patterson's 2007 city limits lie generally south of Eucalyptus Road, west of Sycamore Avenue, north of the Patterson Irrigation District Canal and east of Rogers Road. The current City limits and sphere of influence are shown in Figure 5.1-2.

Existing Land Use

Existing land use (2009) within the Study Area is summarized in Table 5.1-1 by generalized land use categories which are shown in Figure 5.1-3. Future growth in the city is dependent on the development of vacant lands within the city, and the conversion of agricultural lands outside the City to urban use.

Table 5.1-1: Existing Land Use By Generalized Land Use Category -- General Plan Study Area (2009) (gross acres ¹)				
Land Use Category	Within the City Limits	Within the 1992 General Plan Area	Total General Plan Study Area	Percent of General Plan Study Area
Agriculture	881	1,726	9,079	71.1%
Commercial	199	199	199	1.6%
Industrial	493	493	493	3.9%
Public/Quasi-Public/Parks/Open Space	492	492	492	3.9%
Residential	1459	1,505	1602	12.5%
Vacant Land Other Than Agriculture	260	516	530	4.2%
Other Land ²	36	36	373	2.9%
Total:	3,820	4,967	12,768	100%
Source: CMCA, 2009				
Notes:				
1. Gross acres inclusive of streets.				
2. Includes water bodies, freeway rights of way and canals.				

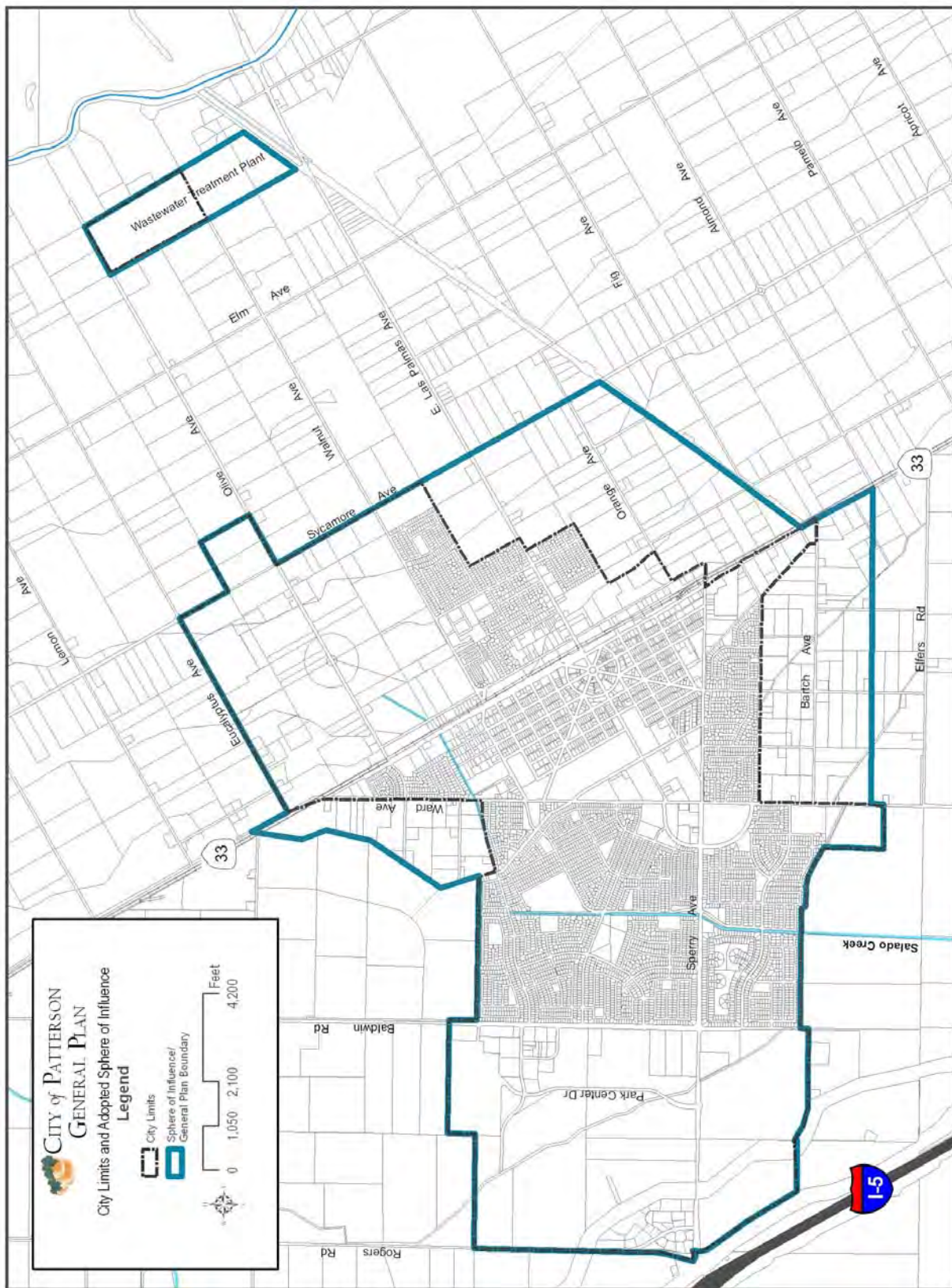
City-owned land outside the urban area is used for various purposes, including a wastewater treatment plant and well sites. Within the urban area public land includes parks, police and fire department buildings, City corporation yard, and other uses.

Natural features within the Study Area include Salado and Del Puerto Creeks and the San Joaquin River which borders to the east.

Figure 5.1-1: Regional Location



Figure 5.1-2: Patterson City Limits and Adopted Sphere of Influence



Regulatory Setting

Federal

Endangered Species Act, Section 10

In 1983 Congress adopted Section 10 of the Endangered Species Act as a way to promote "creative partnerships between the public and private sectors and among governmental agencies in the interest of species and habitat conservation." Section 10 authorizes states, local governments, and private landowners to apply for an Incidental Take Permit for otherwise lawful activities that may harm listed species or their habitats. To obtain a permit, an applicant must submit a Habitat Conservation Plan (HCP) outlining what he or she will do to "minimize and mitigate" the impact of the permitted take on the listed species. The principle underlying the Section 10 exemption from the ESA is that some individuals of a species or portions of their habitat may be expendable over the short term, as long as enough protection is provided to ensure the long term recovery of the species.

There are no habitat conservation plans covering any portion of the Study Area. Compliance with both the federal and State Endangered Species Acts is discussed in Section 10 – Biological Resources.

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands, perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for "any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters." Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites": subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if "the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas": subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual state or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such state or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain federal or state projects from regulation under this Section: subparagraph (r); and,
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).
- Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

The California State Water Resources Control Board and RWQCBs that enforce State of California statutes which are equivalent to or more stringent than the federal statutes. RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. In the Study Area, the RWQCB is responsible for protecting surface and groundwaters from both point and

non-point sources of pollution. Water quality objectives for all of the water bodies within the Study Area were established by the RWQCB and are listed in its Basin Plan.

Compliance with the Clean Water Act is discussed in Chapter 5.13 – Hydrology and Water Quality.

Local

1992 City of Patterson General Plan (current)

In 1988, prompted by growth pressures and concern over the future direction of Patterson, the City retained a consultant team to undertake a complete revision of the City's General Plan. The Patterson General Plan was adopted in 1992 and was intended to provide guidance for the growth and development of the City through 2012. Although the Plan was revised and updated in 2004 (see below), the area covered by the Plan and its vision for the future have remained largely unchanged.

The 1992 General Plan included the following elements:

Land Use*	Circulation*
Housing*	Public Safety (Noise* and Safety*)
Natural Resources (Conservation* and Open Space*)	
Public Services**	Parks and Recreation**

*Mandatory elements required by Section 66000 et seq. of the California Government Code

** Optional elements

Buildout of the 1992 General Plan would accommodate a population of about 33,000 residents and about 14 million square feet of commercial and industrial floor space.

Between 1992 and 2004, the City made a number of important achievements, which include:

- Attractive residential neighborhoods with a variety of housing products, parks and schools;
- A larger supply of affordable housing, including housing for seniors and very-low income households;
- Commercial retail development to serve the day-to-day needs of Patterson residents;
- A successful business park;
- A community pool, regional sports park, award-winning City Hall and other community amenities;
- Improvements to the downtown;

The 1992 Plan designated a significant amount of additional land for urban development. In 2007, about 80 percent of this land is either developed or entitled for development.

In 2004 the City undertook a review of the 1992 General Plan with the goal of incorporating past accomplishments and re-visiting the growth management objectives of the Plan. This effort was not a comprehensive update; rather, it was intended as a “reality check” of the Plan’s goals, policies and programs.

During this effort, the City’s consultants conducted a public workshop at which a range of issues were presented to the Planning Commission and City Council for consideration. The City’s consultants also presented options for addressing these issues which served as the basis for the revisions that were subsequently adopted in 2004. The main revisions addressed the following topics:

- Significant revisions to the Plan's growth management policies;
- The establishment of an Estate Residential land use designation and the application of this designation to the area south of Poppy Avenue;
- Other miscellaneous changes to incorporate past accomplishments, to remove policies and programs that are no longer applicable, and to ensure consistency with recent changes to State law.

Patterson Redevelopment Plan

The Patterson Redevelopment Agency was established in 1998 in accordance with Health and Safety Code §33000 to provide a tool to eliminate blighting conditions within portions of the city. The Project Area consists of about 420 acres. The fundamental goal of redevelopment is to alleviate social, economic, physical, or visual problems that are preventing the full and beneficial use of public and private properties within a portion of the city. The Community Redevelopment Law (CRL) characterizes these problems as blight.

Redevelopment can help finance the improvement of blighted areas by allowing a portion of the increase in property tax revenue generated by new development to be spent on activities that promote physical and economic revitalization, increase the supply of affordable housing and expand employment opportunities. These activities must proceed in accordance with a Redevelopment Plan that describes how the constraints and conditions that preclude the effective utilization of public and private properties within the redevelopment area will be addressed.

The primary focus of the Agency's activities during the past seven years has been to lay the groundwork for the continued revitalization of the Downtown and the elimination of the blighting conditions that remain. Although considerable progress has been achieved over the past five years, much work remains to be done. All of these efforts have helped to improve economic conditions within the City, provide jobs and remove physical and economic blight.

West Patterson Business Park Master Development Plan

The West Patterson Master Development Plan is a cooperative effort of the City, Stanislaus County and the property owners in the Plan area. When it was adopted in 2002, it was intended to supplement the general plans of both jurisdictions by establishing area-specific development standards and design guidelines that will apply to all new development. In 2003 the Local Agency Formation Commission (LAFCo) approved expansion of the City's sphere of influence to accommodate the entire business park. Subsequently, the City annexed the entire area, including the Villa del Lago highway commercial center at Rogers Road and Sperry Avenue.

All subsequent development proposals within the Plan area must be found to be consistent with the Master Development Plan, which in turn must be consistent with the City's General Plan.

City of Patterson Community Design Guidelines and Downtown Physical Design Plan

In 2002 the City adopted the City of Patterson Community Design Guidelines and Downtown Physical Design Plan. The design guidelines describe and inform project designers and applicants of the City's expectations and preferences for the quality and character of new development. The Design Guidelines help ensure that new development is designed in a manner that responds to the unique characteristics of its individual site, but also to fit into the wider context of Patterson.

The Downtown Physical Design Plan is intended to capture the community's shared vision for a revitalized Downtown that is an attractive place to visit, shop and do business by providing a physical design plan that can help guide these revitalization efforts. In the downtown, attention to the design details of both private property development, and the City's treatment of the public realm, warrant more

detailed planning and design direction than the general guidelines provide. The downtown is an area of the city where the design of individual projects and the streetscape are critical to maintaining or improving the attractiveness and other special qualities of each area.

The area covered by the Downtown Plan and Design Guidelines includes the commercial properties around El Circulo and land to the west along Las Palmas Avenue envisioned as the westward expansion of the Downtown in the Patterson General Plan.

City of Patterson Zoning Regulations

Under state law, cities and counties have broad latitude in establishing zoning standards and procedures. Outside of a general requirement for open space zoning and several special requirements governing residential zoning, state law establishes only broadly the scope of zoning regulation and sets minimum standards for its adoption and administration. One key requirement, however, is that zoning must be consistent with the general plan. City zoning is shown on Figure 5.1-4.

Patterson's zoning ordinance (Title 18 of the Patterson Municipal Code), originally adopted in 1955, has been amended many times over the years.

Figure 5.1-4: City of Patterson Zoning (2009)



Stanislaus County General Plan and Zoning Regulations

The Stanislaus County General Plan and zoning ordinance regulate land use in the unincorporated Patterson Study Area. The County General Plan was adopted in 1994 and designates all unincorporated lands in the General Plan Study Area for agricultural uses, with one exception: unincorporated lands designated by the City's existing (1992) General Plan but outside the City limits, are designated as Urban Transition. County zoning within the General Plan Study Area is shown on Figure 5.1-5.

Stanislaus Local Agency Formation Commission

In 1985, the various state laws regulating city and special district organization and annexations were consolidated in the Cortese-Knox Local Government Reorganization Act (Government Code §56000 et seq.). The 1963 Knox-Nisbet Act, which was superseded by Cortese-Knox, created local agency formation commissions (LAFCo's) in each county in California to regulate the organization and extension of services provided by cities and special districts. The Act declares that "among the purposes of a commission are discouraging urban sprawl, preserving open-space and prime agricultural lands, efficiently providing government services, and encouraging the orderly formation and development of local agencies based upon local conditions and circumstances."

One of the purposes of the commission is to make studies and to obtain and furnish information which will contribute to the logical and reasonable development of local agencies in each county and to shape the development of local agencies so as to advantageously provide for the present and future needs of each county and its communities. (Government Code §56301). In meeting these responsibilities, each LAFCo is required "to review and approve or disapprove, with or without amendment, wholly, partially, or conditionally, proposals for changes of organization or reorganization consistent with written policies, procedures, and guidelines adopted by the commission " (Government Code §56375). According to Section 56021 of the Government Code, "change of organization" means any of the following:

- A city incorporation
- A district formation
- An annexation to, or detachment from, a city or district
- A disincorporation of a city
- A district dissolution
- A consolidation of cities or special districts
- A merger or establishment of a subsidiary district

In addition to the regulatory responsibilities of LAFCo, the commission is empowered to initiate and to make studies of existing governmental agencies. These studies include, but are not limited to, inventorying local agencies and determining their maximum service areas and service capabilities.

In 2000, further amendments were enacted to the California Government Code relating to the responsibilities of LAFCos in deciding local government reorganizations. Renamed the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH Act), the goal of the revised law is to foster informed decision-making with regard to local government reorganizations by requiring the documentation of the ability of service providers to serve the areas within their spheres of influence (discussed below).

Figure 5.1-5: County Zoning

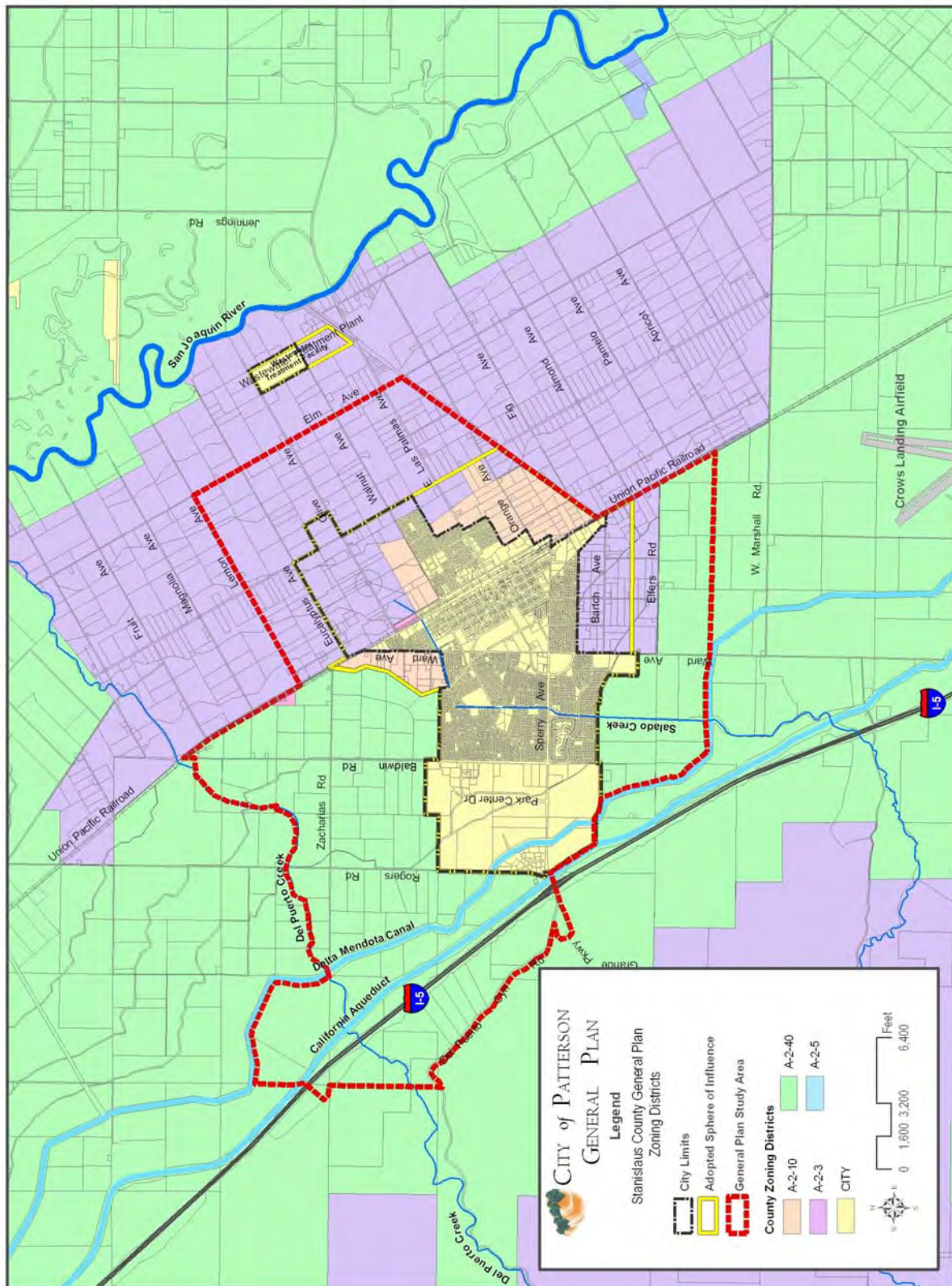
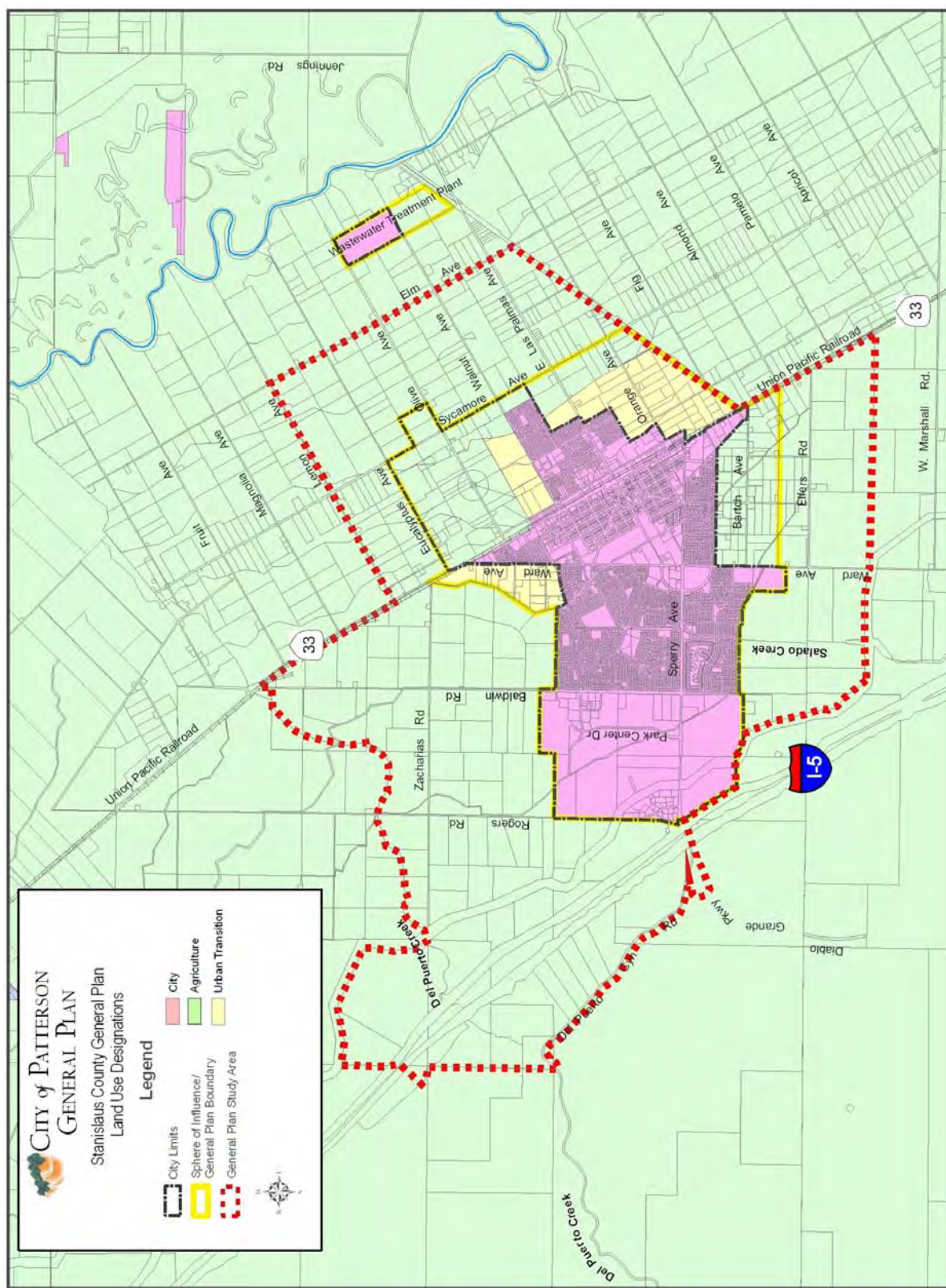


Figure 5.1-6: County General Plan Land Use Designations



As the basis for making decisions about organizational changes and annexations, LAFCo must adopt a sphere of influence for each local agency subject to LAFCo regulation. The CKH Act defines a sphere of influence as "a plan for the probable physical boundaries and service area of a local agency, as determined by the commission" Government Code §56076). Under Government Code Section 56080, this can include the identification of an "urban service area" which identifies an area within a city's sphere of influence which is served by urban facilities, utilities, and services, or which is proposed to be served during the first five years of an adopted capital improvement program. The urban service area boundary shall be adopted by the LAFCo in cooperation with the affected city (Government Code §56080).

In determining the sphere of influence for each local agency, the LAFCo must consider and prepare a written statement of its determinations with respect to each of the following:

- The present and planned land uses in the area, including agricultural and open-space lands.
- The present and probable need for public facilities and services in the area.
- The present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide.
- The existence of any social or economic communities of interest in the area if the commission determines that they are relevant to the agency. (Government Code §56425).

Changes enacted to the CKH Act in 2000 now require LAFCOs to prepare a service review of municipal facilities to assess the provider's capacity to serve its sphere of influence. Government Code section 56430 states:

(a) In order to prepare and to update spheres of influence in accordance with Section 56425, the commission shall conduct a service review of the municipal services provided in the county or other appropriate area designated by the commission. The commission shall include in the area designated for service review the county, the region, the subregion, or any other geographic area as is appropriate for an analysis of the service or services to be reviewed, and shall prepare a written statement of its determinations with respect to each of the following:

1. *Infrastructure needs or deficiencies.*
2. *Growth and population projections for the affected area.*
3. *Financing constraints and opportunities.*
4. *Cost avoidance opportunities.*
5. *Opportunities for rate restructuring.*
6. *Opportunities for shared facilities.*
7. *Government structure options, including advantages and disadvantages of consolidation or reorganization of service providers.*
8. *Evaluation of management efficiencies.*
9. *Local accountability and governance.*

(b) In conducting a service review, the commission shall comprehensively review all of the agencies that provide the identified service or services within the designated geographic area.

Following these changes to the CKH Act, the Stanislaus County LAFCo adopted revised policies and procedures aimed at implementing the purpose and intent of the new legislation. Consistent with the requirements stated above, the revised policies require the preparation of a Sphere of Influence Plan and Master Services Element for each sphere of influence in the County. The purpose of the SOI Plan and

Element is to document the agency's capacity to provide services to accommodate the present and future planned development within its sphere of influence.

The heart of the Sphere of Influence Plan is the Master Services Element which provides specific service capabilities of the agency and demonstrates that the agency can provide adequate and efficient services to the areas included within the agency's sphere.

In addition to the service review requirements, when considering an amendment of a sphere of influence, a city is required to consult with the County as follows:

56425 (B) At least 30 days prior to submitting an application to the commission for a determination of a new sphere of influence, or to update an existing sphere of influence for a city, representatives from the city shall meet with county representatives to discuss the proposed sphere, and its boundaries, and explore methods to reach agreement on the boundaries, development standards, and zoning requirements within the sphere to ensure that development within the sphere occurs in a manner that reflects the concerns of the affected city and is accomplished in a manner that promotes the logical and orderly development of areas within the sphere.

Section 56425 further states that, if an agreement is reached between the city and county regarding the boundaries, development standards, and zoning requirements within the proposed sphere, the agreement shall be forwarded to the commission, and the commission shall "...give great weight to the agreement..." in the commission's final determination of the city sphere.

LAFCo decisions must be consistent with applicable spheres of influence (Government Code §56375.5). This means that LAFCo may not approve the annexation of land to a city that lies outside the adopted sphere of influence.

Patterson's current sphere of influence was adopted by the Stanislaus County LAFCo in 2006. The City's sphere boundaries are coterminous with the existing General Plan boundaries (see Figure 5.1-2).

Standards of Significance

According to the CEQA Guidelines Section 15131(a) a project will normally have a significant impact if it would:

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

Project Impacts and Mitigation Measures

Methodology

Land use impacts associated with the Equal-Weight Alternatives were assessed by a comparison of proposed land uses with relevant applicable adopted planning documents governing land use within the Study Area. These documents include the currently-adopted General Plan for the City of Patterson, the Stanislaus County General Plan and zoning regulations, applicable Airport Land Use Plans, as well as the rules and procedures of the Stanislaus Local Agency Formation Commission.

The assessment that follows is based on buildout of the Equal-Weight Alternatives. Specific physical impacts to the environment and corresponding plan consistency, are discussed in the other topical sections of this EIR.

Land Use Compatibility

Impact 5.1-1 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could result in land use compatibility conflicts between existing and future land uses within the Study Area. This impact is considered less than significant.

Each of the Equal-Weight Alternatives would result in the outward expansion of the existing urban area of the City with the development of a range of uses that include housing, retail, industrial and public uses. Each alternative, and the recommended policies provided in the Policy Document, was crafted based on the pattern of existing urban development and the associated environmental constraints, and mindful of potential impacts relating to land use compatibility. Accordingly, land use compatibility issues are expected to be minimal, but could still occur where housing abuts ongoing agricultural operations, industrial businesses or shopping centers.

The degree to which compatibility issues arise is related to the total acreage of the various land uses proposed by each Equal-Weight Alternative. As shown on Table 5.1-2, the PC Environmental Review Plan designates the most acreage for additional urban uses which in turn would suggest a higher potential for land use compatibility impacts than either the Jobs Emphasis, Compact Development or No Project – 1992 General Plan alternatives.

The potential impacts of land use compatibility include noise, the use, transport and storage of hazardous materials; light and glare; and air pollution. These issues are addressed in the other topical sections of this EIR.

Table 5.1-2: Comparison of Gross Acres By Land Use Category,
20- and 40-year (buildout) Planning Growth Boundaries Combined

Land Use Category	1992 General Plan	Compact Development	Jobs Emphasis	PC Env. Review Plan
Housing and Mixed-Use Development	2,722	4,250	7,265	8,259
Retail/Commercial	374	626	980	675
Industrial	1,202	2,028	1,854	2,277
Public	633	680	702	701
Other ¹	36	79	664	533
Total Acres:	4,967	7,664	11,465	12,446
Notes: 1. Approximate.				

Mitigation Provided By Existing Regulations

The Patterson Municipal Code provides a number of performance standards aimed at minimizing land use compatibility impacts. For example, Title 6 – Health and Safety, provides standards for (among other things):

Property Maintenance (6.16)	Neglected Vacant Structures (6.18)
Storage of Fuels (6.24)	Hazardous Materials (6.40)
Noise Control (6.44)	Right to Farm (6.48)

In addition, the City's Zoning Ordinance (Title 18) sets forth development and use standards for each zone which are intended to help ensure compatibility among land uses. The Ordinance establishes conditionally allowable uses for each zone that require discretionary review of new development.

And lastly, the City's Community Design Guidelines and Downtown Physical Design Plan set forth the City's expectations for the qualities to be incorporated in new development. The Guidelines illustrate design strategies to help ensure new development complements existing development and minimizes impacts to surrounding development.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address land use compatibility, including the following:

- LU-1.1 Development strategy.** The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:
- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - e. Short blocks with a substantial tree canopy shading the street and sidewalk;
 - f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - g. A sense of personal safety;
 - h. Elements that foster the sustainable use of scarce or non-renewable resources.
- LU-1.2 Neighborhood villages.** To achieve the objectives described in Policy LU-1.2, the General Plan applies the *Neighborhood Village* (NV) designation to areas contemplated for new, large-scale residential development. The Neighborhood Village designation is considered a “holding” category which will apply until such time as a general plan amendment accompanied by a planned development is approved by the City, as required by Policy LU-1.3.
- LU-1.13 Status of land prior to urban development.** Land within the General Plan Area shall ultimately be developed to urban standards described in Part I – Land Use and Development Standards. Pending connection to City services, such land shall remain in agricultural, open space, or other low intensity uses.
- LU-1.14 Development of unincorporated land within the General Plan area.** The City shall encourage the County to require development on unincorporated lands within the Patterson Study Area to be developed to standards consistent with City standards, including architectural compatibility, provision of adequate infrastructure improvements, and provision of City sewer service, and to ensure that such development adequately mitigates potential adverse impacts to the City.
- LU-1.15 County development within the City’s sphere of influence.** The City shall encourage the County to continue to abide to the memorandum of understanding that requires all new urban development within the City’s adopted sphere of influence to be:
- a. Designed consistent with City building and design standards;
 - b. Referred to the City for consideration prior to County approval; and
 - c. Subject to the payment of all applicable development impact fees imposed by the City.

- LU-3.2 Location of new commercial development.** New commercial development on a site greater than 10 acres shall be concentrated in three locations:
- The intersection of Sperry Avenue and Ward Avenue;
 - The interchange of Sperry Avenue and Interstate 5; and
 - A future interchange with Interstate 5 in the vicinity of Zacharias road.
- LU-7.2 Location of industrial development.** New industrial development shall be located along arterials with easy freeway or rail access and shall be served by full City services.
- LU-7.4 Clean industries.** The City shall promote the development of clean industries that do not pose health risks associated with water and air pollution or potential leaks or spills.
- LU-9.1 Airport land use plans.** The City shall continue to ensure that amendments to the General Plan are consistent with applicable adopted airport land use plans.
- CD-1.1 Smart Growth principles.** The City shall continue to require new development to incorporate the principles of 'Smart Growth', including:
- A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - Short blocks with a substantial tree canopy shading the street and sidewalk;
 - Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - A sense of personal safety;
 - Elements that foster the sustainable use of scarce or non-renewable resources.
- CD-3.2 Neighborhood design.** The City shall promote the creation of well-defined residential neighborhoods in newly-developing areas. Each of these neighborhoods should have a clear focal point, such as a park, school, or other open space and community facility, and should be designed to promote pedestrian convenience. To this end, the City shall encourage the use of existing Patterson neighborhoods, including the grid street system, as models for the planning and design of new residential neighborhoods.
- HS-4.7 Noise levels resulting from non-transportation sources.** New development of noise-sensitive uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the noise level standards of Table HS-1, as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table HS-1.

- HS-4.8 Noise levels resulting from non-transportation noise sources.** Noise levels resulting from non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table HS-1 as measured immediately within the property line of lands designated for noise-sensitive uses. This policy does not apply to noise sources associated with agricultural operations on lands zoned for agricultural uses.

Table HS-1: Noise Level Performance Standards For New Projects Affected By Or Including Non-Transportation Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, Db	50	45
Maximum level, Db	70	65

Each of the noise levels specified above shall be lowered by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

- HS-4.11 Noise sensitive land uses.** New development of noise-sensitive land uses will not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.
- HS-6.4 Avoidance.** The City shall seek to avoid and minimize exposure of sensitive land uses to potentially hazardous emissions along truck routes and rail lines which may be used by surface vehicles and rail cars carrying hazardous or toxic substances. These truck routes include Interstate 5, State Highway 33, and Las Palmas Avenue. Rail corridors include the two primary lines running north-south through Patterson.
- HS-6.6 Industrial facilities.** The City shall work with responsible agencies to ensure that all industrial facilities are constructed and operated in accordance with the most current safety and environmental protection standards.
- HS-6.7: Storage.** Industries that store and process significant quantities of hazardous or toxic materials shall provide a buffer zone between the installation that houses such substances and the property boundaries of the facility sufficient to protect the public in the event of the release or leak of the materials.
- NR-2.1 Agricultural land preservation.** Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.

- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.
- NR-2.3 Greenbelt.** The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.
- NR-2.10 Right-to-farm.** The City shall continue to apply its right-to-farm ordinance.
- PS-9.1 Land use compatibility.** Public facilities—such as utility substations, water storage or treatment plants, pumping stations, and sewer treatment plants—shall be located, designed, and maintained so that noise, light, glare, or odors associated with these facilities will not adversely affect nearby land uses. Building and landscaping materials that make these facilities compatible with neighboring properties shall be used.
- PS-9.5 Environmental justice.** The City shall ensure that facilities are equitably distributed throughout the city, and that facility location and design are compatible with surrounding land uses and do not adversely affect members of a disadvantaged socioeconomic class.

The policies listed above apply to each Equal-Weight alternative and will help minimize land use compatibility impacts by establishing neighborhood villages with a complementary range of land uses, and by concentrating large-scale industrial and commercial development at specified nodes and within the West Patterson Business Park Master Development Plan area.

The draft Policy Document also provides policies aimed at protecting ongoing agricultural operations from the encroachment of urban development, and by continuing to apply the City's Right-To-Farm ordinance. A greenbelt of agricultural land is recommended to be established to help buffer agricultural operations from urban development and the impacts of farming on newly-established neighborhoods.

The policies and standards described above will reduce potential land use compatibility impacts associated with the Jobs Emphasis, Compact Development and PC Environmental Review alternatives to **less than significant**.

Additional Mitigation

None are required.

Consistency with Adopted Plans and Policies

Impact 5.1-2 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives are inconsistent with policies and development regulations of the Stanislaus County General Plan. This impact is considered potentially significant.

The Stanislaus County General Plan governs land use outside the City limits within the Study Area. The applicable land use designations are shown on Figure 5.1-6. The majority of lands surrounding the City are designated Agriculture. The Agriculture designation establishes agriculture as the primary use, but allows dwelling units, limited agriculturally-related commercial services, agriculturally-related light industrial uses, and other uses which by their unique nature are not compatible with urban uses. The Agriculture designation is also consistent with areas that County General Plan has identified as suitable for open space or recreational use and for ranchettes.

The Agriculture designation is consistent with an A-2 (General Agriculture) zoning district (see Figure 5.1-5). PD (Planned Development) zoning may also be appropriate, provided the development does not exceed the established building intensity of this designation. Residential building intensity normally ranges from zero to two dwellings per 40 acres in the A-2-40 zone and up to one dwelling per three acres in A-2-3.

The Draft Policy Document establishes an Agriculture land use category that is intended to reflect the range of uses allowable under the County's Agriculture designation and corresponding zoning. For each Equal-Weight Alternative, all land surrounding the City that is not designated for an urban use or open space is designated Agriculture. Accordingly, areas designated Agriculture under each Equal-Weight Alternative are consistent with the County General Plan land use designations.

However, a comparison of the County's land use designations with those of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives reveals inconsistencies in that each Equal-Weight alternative designates land surrounding the City with urban land use designations that would allow the conversion of agricultural land to urban uses. For each alternative, the Policy Document provides policies that require inclusion within the City's sphere of influence and annexation prior to urban development. Amendment of the City's sphere of influence and annexation require the approval of the Local Agency Formation Commission and cannot be guaranteed. Prior to annexation, the land use designations of any of the Equal-Weight alternatives would remain inconsistent with those of the County. Inconsistency with the County General Plan is considered a **significant impact**.

Mitigation Provided By Existing Regulations

Stanislaus County General Plan

The Stanislaus County General Plan contains the following policies concerning the protection of agricultural lands:

Policy 10. New areas for urban development (as opposed to expansion of existing areas) shall be limited to less productive agricultural areas.

Policy 14. Uses shall not be permitted to intrude into an agricultural area if they are detrimental to continued agricultural usage of the surrounding area.

Policy 16. Agriculture, as the primary industry of the County, shall be promoted and protected.

In addition, the County's Agricultural Element contains the following goals and policies;

Goal 2: Preserve Our Agricultural Lands for Agricultural Uses.

Policy 2.3 To reduce development pressures on agricultural lands, higher density development and in-filling shall be encouraged in urban and built-up areas of the County.

Policy 2.4 To the greatest extent possible, development shall be directed away from the County's most productive agricultural areas.

Policy 2.5 New areas for urban development (as opposed to expansion of existing areas) shall be limited to less productive agricultural areas.

Policy 2.6 Agricultural lands restricted to agricultural use shall not be assessed to pay for infrastructure needed to accommodate development.

Policy 2.7 Proposed amendments to the General Plan Diagram (map) that would allow the conversion of agricultural land to non-agricultural uses shall be approved only if they are consistent with the County's conversion criteria.

Policy 2.8 The County recognizes the right of cities and unincorporated communities to grow and prosper and shall not oppose reasonable requests to expand spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities to accommodate growth.

Policy 2.9 In recognition that unincorporated land within spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities ultimately will be urbanized, the County shall cooperate with cities and unincorporated communities in managing development in urban transition areas.

Policy 2.10 The County shall continue to encourage the upgrading of existing unincorporated communities.

Policy 2.11 The County shall discourage the expansion of spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities into its most productive agricultural areas.

In addition, the County General Plan contains the following policy concerning development within the unincorporated portion of a city's sphere of influence. These policies do not allow development within a City's sphere of influence to occur if it is inconsistent with a city's adopted general plan. These policies could, however, allow the County to approve development within Patterson's sphere of influence if the proposed development is consistent with the City's General Plan.

Policy 24. Development, other than agricultural uses and churches, which requires discretionary approval and is within the sphere of influence of cities or in areas of specific designation created by agreement (e.g., Sperry Avenue and East Las Palmas Corridors), shall not be

approved unless first approved by the city within whose sphere of influence it lies or by the city for which areas of specific designation were agreed. Development requests within the spheres of influence or areas of specific designation of any incorporated city shall not be approved unless the development is consistent with agreements with the cities which are in effect at the time of project consideration. Such development must meet the applicable development standards of the affected city as well as any public facilities fee collection agreement in effect at the time of project consideration. (Comment: This policy refers to those development standards that are transferable, such as street improvement standards, landscaping, or setbacks. It does not always apply to standards that require connection to a sanitary sewer system, for example, as that is not always feasible.)

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address consistency with adopted plans and policies, including the following:

Policies

- LU-1.1 Development strategy.** The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:
- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - e. Short blocks with a substantial tree canopy shading the street and sidewalk;
 - f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - g. A sense of personal safety;
 - h. Elements that foster the sustainable use of scarce or non-renewable resources.
- LU-1.2 Neighborhood villages.** To achieve the objectives described in Policy LU-1.2, the General Plan applies the *Neighborhood Village* (NV) designation to areas contemplated for new, large-scale residential development. The Neighborhood Village designation is considered a “holding” category which shall apply until such time as a general plan amendment accompanied by a planned development is approved by the City, as required by Policy LU-1.3.
- LU-1.9 Managing the pace of development.** The City shall link the rate of growth in Patterson to the provision of adequate services and infrastructure, including schools. The City shall, through specific plans and/or planned development plans for major projects, ensure that urban development proceeds in an orderly fashion and in pace with the expansion of public facilities and services.

- LU-1.13 Status of land prior to urban development.** Land within the General Plan Area shall ultimately be developed to urban standards described in Part I – Land Use and Development Standards. Pending connection to City services, such land shall remain in agricultural, open space, or other low intensity uses.
- LU-1.14 Development of unincorporated land within the General Plan area.** The City shall encourage the County to require development on unincorporated lands within the Patterson Study Area to be developed to standards consistent with City standards, including architectural compatibility, provision of adequate infrastructure improvements, and provision of City sewer service, and to ensure that such development adequately mitigates potential adverse impacts to the City.
- LU-1.15 County development within the City's sphere of influence.** The City shall encourage the County to continue to abide to the memorandum of understanding that requires all new urban development within the City's adopted sphere of influence to be:
- Designed consistent with City building and design standards;
 - Referred to the City for consideration prior to County approval; and
 - Subject to the payment of all applicable development impact fees imposed by the City.
- LU-9.1 Airport land use plans.** The City shall continue to ensure that amendments to the General Plan are consistent with applicable adopted airport land use plans.
- CD-1.1 Smart Growth principles.** The City shall continue to require new development to incorporate the principles of 'Smart Growth', including:
- A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - Short blocks with a substantial tree canopy shading the street and sidewalk;
 - Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - A sense of personal safety;
 - Elements that foster the sustainable use of scarce or non-renewable resources.
- CD-1.7 Maintain a distinct urban edge.** The City shall seek to maintain a distinct agricultural definition to the urban edge of the city as a means of emphasizing Patterson's small-town qualities and agricultural heritage.
- CD-3.2 Neighborhood design.** The City shall promote the creation of well-defined residential neighborhoods in newly-developing areas. Each of these neighborhoods should have a clear focal point, such as a park, school, or other open space and community facility, and should be

designed to promote pedestrian convenience. To this end, the City shall encourage the use of existing Patterson neighborhoods, including the grid street system, as models for the planning and design of new residential neighborhoods.

- NR-2.1 Agricultural land preservation.** Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.

- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.

- NR-2.3 Greenbelt.** The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.

- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.

- NR-2.5 Regional farmland preservation.** The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.

- NR-3.11 Open space conservation.** The City shall continue to preserve, protect, and provide access to designated open space areas that may be established along the San Joaquin River, Del Puerto Creek, and undevelopable floodplains.

- AI-1.1 Review of policy document.** The City shall review the General Plan Policy Document every two years and revise it as deemed necessary.

- AI-1.2 General Plan amendments.** The General Plan shall be amended no more than four times per year. Each amendment, however, may include multiple changes.

- AI-1.3 Major review of General Plan and supporting materials.** The City shall conduct a major review of the General Plan, including the Policy Document and Background Report, every five years and revise it as deemed necessary.

Implementation Measures

- LU-5 The City shall work with the County to develop joint land use plans and design standards for the unincorporated area within the Sperry Avenue and East Las Palmas Avenue corridors.
- CD-1 The City shall implement the Community Design Guidelines and Downtown Physical Design Plan.
- NR-3 The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program will address at least the following:
- o The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
 - o Criteria for assessing the suitability of agricultural lands to be permanently protected.
 - o Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism.
- NR-5 The City shall investigate a mechanism for funding the acquisition and management of lands for mitigation land bank for impacts to biological and/ agricultural resources.
- AI-1 The Planning Commission shall review the General Plan Policy Document every two years, focusing principally on actions undertaken in the previous two years to carry out the implementation programs of the Plan. The Planning Commission's report to the City Council shall include, as the Commission deems appropriate, recommendations for amendments to the General Plan. This review shall also be used to satisfy the requirements of Public Resources Code §21081.6 for a mitigation monitoring program.

Inconsistencies between the Stanislaus County General Plan and the Jobs Emphasis, Compact Development and PC Environmental Review alternatives would remain unless and until the areas in question are included within the City's sphere of influence and annexed to the City by the Local Agency Formation Commission. Moreover, impacts associated with development of these areas with urban uses as recommended by the Jobs Emphasis, Compact Development and PC Environmental Review alternatives would be greater than those associated with uses allowed by the County General Plan. This impact is considered **significant and unavoidable**.

The Jobs Emphasis, Compact Development and PC Environmental Review alternatives will result in the designation of urban land uses on land currently governed by the County policies described above and will therefore be inconsistent with these policies. This impact is considered **significant and unavoidable**.

Additional Mitigation

None available.

Impact 5.1-3 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives are inconsistent with City of Patterson zoning regulations. This impact is considered less than significant.

Site-specific development accommodated by the current General Plan is regulated by the Patterson Zoning Ordinance (Title 18 of the Patterson Municipal Code). In accordance with the California Government Code, the zoning districts applied within the City must be consistent with the land use designations provided by the General Plan.

The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives each recommend changes to the land use designations within the current City limits which in turn would result in inconsistencies between the land use designations and the current zoning for particular areas. Thus, until the applicable zoning regulations are amended consistent with the adopted General Plan land use designations there will be inconsistencies between the two. This is considered a less than significant impact. The first implementation program recommended by the Land Use Element (measure LU-1) is a revision to applicable provisions of the zoning ordinance text and map to be consistent with the adopted land use designations.

Draft Policy Document Response

Implementation Measures

- LU-1 The City shall review and revise, as necessary, the Zoning Ordinance to accomplish the following purposes:
- a. Ensure consistency with the General Plan in terms of zoning districts and development standards.
 - b. Ensure consistency with the General Plan in terms of the distribution and boundaries of zoning districts.
 - c. Create separate new zoning districts to adequately implement the General Plan (e.g., downtown core and highway service commercial).

The potential inconsistencies between the recommended land use designations associated with the Jobs Emphasis, Compact Development and PC Environmental Review Plan would be resolved by Implementation Measure LU-1 which requires an amendment of the City's Zoning Ordinance following adoption of the General Plan. This impact is considered **less than significant** after application of the implementation measures and policies outlined above.

Impact 5.1-4 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives may be inconsistent with adopted policies, rules and procedures of the Stanislaus Local Agency Formation Commission. This impact is considered potentially significant.

The following LAFCo policies are included in LAFCo's Policies and Procedures Manual, August 27, 2003, and are relevant to the Patterson General Plan:

POLICY 1 - PURPOSE.

The purposes of the Local Agency Formation Commission are provided by the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000, and include the following:

- Discourage urban sprawl;
- Encourage orderly formation and development of local governmental agencies, based on local conditions and circumstances;
- Initiate and make studies of governmental agencies;
- Adopt spheres of influence for each local governmental agency.

The following Goals will guide the Commission in implementing the purposes of LAFCo (amended April 23, 2003):

- To encourage planned, well-ordered, efficient development patterns.
- To encourage efficient and effective delivery of Governmental Services by the agencies who provide those services.
- To encourage urban land use patterns which balance urban growth with the conservation of open space and prime agricultural lands.
- To encourage the cities and the County to plan urban land use patterns which include a harmony between housing for residents and jobs provided by commercial and industrial development.

POLICY 4 - PRIORITIES FOR ANNEXATION AND FORMATION.

The Commission will consider the following priorities or guidelines for annexation and formation with the provision that overriding circumstances must be stated in exceptions (Government Code Section 56001):

- A. Annexation to an existing city or district instead of formation of a new agency.
- B. Annexation to a city rather than a district if both can provide comparable services.
- C. Annexation to a multi-purpose district in preference to annexation to a single purpose district.
- D. Formation of a new political entity as the last and least desirable alternative.

POLICY 20 – LOGICAL BOUNDARIES

The following shall be considered as favorable factors in determining logical boundaries for a proposal (amended April 23, 2003):

- A. The Commission encourages the creation of logical boundaries and proposals which do not create islands and would eliminate existing islands, corridors, or other distortion of existing boundaries.
- B. Proposals which are orderly and will either improve or maintain the agency's logical boundary are encouraged.

POLICY 21 – DEVELOPMENT OF VACANT OR UNDERUTILIZED LAND PRIOR TO ANNEXATION OF ADDITIONAL TERRITORY

The following shall be considered with regards to development of vacant or underutilized land prior to annexation of additional territory:

- A. Development of existing vacant non-open space and non-prime agricultural land within an agency's boundaries is encouraged prior to further annexation and development.

- B. Annexation proposals to cities or districts providing urban services of undeveloped or agricultural parcels shall show: that urban development is imminent for all or a substantial portion of the proposal area; that urban development will be contiguous with existing or proposed development; and that a planned, orderly, and compact urban development pattern will result. Proposals resulting in leapfrog, non-contiguous urban development patterns shall not be approved.

SPHERE OF INFLUENCE POLICIES

4. Territory not in need of urban services, including open space, agriculture, non-protested, or protested and not upheld Williamson Act contracted lands, shall not be assigned to an agency's sphere of influence, unless the area's exclusion would impede the planned, orderly and efficient development of this area.

AMENDMENT OF SPHERES

5. Demonstrated Need Required. An Application for amendment to a Sphere of Influence must demonstrate a projected need or (in the case of reduction of the sphere) lack of need for service.
6. Prime Agricultural Land. Amendment proposals involving Sphere expansion which contain prime agricultural land will not be approved by LAFCo if there is sufficient alternative land available for annexation within the existing Sphere of Influence.

Each of the Equal-Weight Alternatives designates land for additional urban development outside the City's current General Plan area and adopted sphere of influence to meet the objectives articulated in section 3.0-Description of Equal-Weight Project Alternatives. To meet the City's objectives for affordable housing, balancing jobs with housing, the expansion of local retail opportunities, and the provision of public facilities such as health care and schools, additional land for urban development will be needed over time.

The draft Policy Document sets forth a long-term (40 year) development strategy and a set of policies and implementation measures to meet these objectives. The recommended policies and implementation measures will apply to each Equal-Weight Alternative and encourage the application of "Smart Growth" principles which encourage the orderly outward expansion of the City through the development of 'complete neighborhoods' which facilitates the efficient provision of public services.

The City is surrounded by prime agricultural land which comprises most of the acreage within the General Plan Study Area (see Table 5.11-5 of section 5.11-Agricultural Resources). To meet the General Plan objectives described in section 3.0, a portion of this acreage will be converted to urban use. The acreage will differ for each Equal-Weight Alternatives (see Table 5.11-5 of section 5.11-Agricultural Resources). Accordingly, each Equal-Weight Alternative results in a different trade-off of urban development and prime agricultural land. The Compact Development Alternative would result in the least acreage of agricultural land converted and the least amount of urban development, followed by the Jobs Emphasis Alternative with the next most acreage and development, and the Planning Commission Environmental Review Alternative which will result in the most agricultural land converted and the highest level of development.

The 2010 General Plan does not propose the annexation of land or an amendment of the City's sphere of influence. However, the draft policies and programs recommended in the draft Policy Document anticipate the expansion of City services to serve each of the Equal-Weight Alternatives. Sections 5.3-

Public Services, describes the various policies and programs to be implemented to ensure the provision of services concurrently or in advance of annexation. The infrastructure programs described in sections 5.4-Water Supply, 5.5-Wastewater, 5.6-Transportation, 5.13-Hydrology and Water Quality, set forth the City's programs for providing these services for each of the Equal-Weight Alternatives. The draft Policy Document is consistent with Policy 4.

The boundaries chosen for the extent of urban development accommodated by each of the Equal-Weight Alternatives were chosen to result in logical boundaries. In each case the boundaries follow property lines, canals, roadways or a creek. Each Equal-Weight Alternative will help further policy 20 as implemented by LAFCo. Policy LU-1.7 of the draft Policy Document states:

LU-1.7 Preferences for the timing of urban development. The Land Use Diagram (Figure I-3) designates areas expected to be developed within a 20-year and 40-year (buildout) timeframe. These boundaries are not permanent but express the City's preferences for the timing of future development, based on the availability of public services prescribed by the City's infrastructure master plans. In general, the preferred timing of urban development in accordance with the General Plan is as follows:

- a. First Priority—Vacant or underutilized areas within the current City limits;
- b. Second Priority—Vacant or underutilized areas within the City's currently-adopted sphere of influence;
- c. Third priority—Vacant or underutilized areas within the 20-year planning boundary;
- d. Fourth Priority—Areas outside the 20-year planning boundary.

Implementation of policy LU-1.7 will help ensure consistency with LAFCo policy 21.

Policies relating to sphere of influence amendments would be applied by LAFCo at such time as the City proposes an amendment to its sphere of influence. The 2010 Patterson General Plan update does not propose such an amendment. However, each of the Equal-Weight Alternatives designates land for urban development that includes agricultural lands subject to Williamson Act contracts (see section 5.11 and Figure 5.11-3). Consistency will be determined by LAFCo at the time an amendment of the City's sphere of influence is proposed.

Draft Policy Document Response

Policies

LU-1.1 Development strategy. The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of "complete" neighborhoods, incorporating the following characteristics:

- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
- b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;

- d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- e. Short blocks with a substantial tree canopy shading the street and sidewalk;
- f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
- g. A sense of personal safety;
- h. Elements that foster the sustainable use of scarce or non-renewable resources.

LU-1.2 Neighborhood villages. To achieve the objectives described in Policy LU-1.2, the General Plan applies the *Neighborhood Village* (NV) designation to areas contemplated for new, large-scale residential development. The Neighborhood Village designation is considered a “holding” category which will apply until such time as a general plan amendment accompanied by a planned development is approved by the City, as required by Policy LU-1.3.

LU-1.9 Managing the pace of development. The City shall link the rate of growth in Patterson to the provision of adequate services and infrastructure, including schools. The City shall, through specific plans and/or planned development plans for major projects, ensure that urban development proceeds in an orderly fashion and in pace with the expansion of public facilities and services.

LU-1.13 Status of land prior to urban development. Land within the General Plan Area shall ultimately be developed to urban standards described in Part I – Land Use and Development Standards. Pending connection to City services, such land shall remain in agricultural, open space, or other low intensity uses.

LU-1.14 Development of unincorporated land within the General Plan area. The City shall encourage the County to require development on unincorporated lands within the Patterson Study Area to be developed to standards consistent with City standards, including architectural compatibility, provision of adequate infrastructure improvements, and provision of City sewer service, and to ensure that such development adequately mitigates potential adverse impacts to the City.

LU-1.15 County development within the City’s sphere of influence. The City shall encourage the County to continue to abide to the memorandum of understanding that requires all new urban development within the City’s adopted sphere of influence to be:

- a. Designed consistent with City building and design standards;
- b. Referred to the City for consideration prior to County approval; and
- c. Subject to the payment of all applicable development impact fees imposed by the City.

LU-9.1 Airport land use plans. The City shall continue to ensure that amendments to the General Plan are consistent with applicable adopted airport land use plans.

CD-1.1 Smart Growth principles. The City shall continue to require new development to incorporate the principles of ‘Smart Growth’, including:

- A mix of housing products and densities serving the broadest range of households, incomes and ages;

- A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- Short blocks with a substantial tree canopy shading the street and sidewalk;
- Connectivity to surrounding neighborhoods, regional retail centers and employment;
- A sense of personal safety;
- Elements that foster the sustainable use of scarce or non-renewable resources.

CD-1.7 Maintain a distinct urban edge. The City shall seek to maintain a distinct agricultural definition to the urban edge of the city as a means of emphasizing Patterson's small-town qualities and agricultural heritage.

CD-3.2 Neighborhood design. The City shall promote the creation of well-defined residential neighborhoods in newly-developing areas. Each of these neighborhoods should have a clear focal point, such as a park, school, or other open space and community facility, and should be designed to promote pedestrian convenience. To this end, the City shall encourage the use of existing Patterson neighborhoods, including the grid street system, as models for the planning and design of new residential neighborhoods.

NR-2.1 Agricultural land preservation. Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.

NR-2.2 Compact development. The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.

NR-2.3 Greenbelt. The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.

NR-2.4 Support for County agricultural land preservation. The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.

NR-2.5 Regional farmland preservation. The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.

NR-3.11 Open space conservation. The City shall continue to preserve, protect, and provide access to designated open space areas that may be established along the San Joaquin River, Del Puerto Creek, and undevelopable floodplains.

- AI-1.1 Review of policy document.** The City shall review the General Plan Policy Document every two years and revise it as deemed necessary.
- AI-1.2 General Plan amendments.** The General Plan shall be amended no more than four times per year. Each amendment, however, may include multiple changes.
- AI-1.3 Major review of General Plan and supporting materials.** The City shall conduct a major review of the General Plan, including the Policy Document and Background Report, every five years and revise it as deemed necessary.

Implementation Measures

- LU-1** The City shall review and revise, as necessary, the Zoning Ordinance to accomplish the following purposes:
- a. Ensure consistency with the General Plan in terms of zoning districts and development standards.
 - b. Ensure consistency with the General Plan in terms of the distribution and boundaries of zoning districts.
 - c. Create separate new zoning districts to adequately implement the General Plan (e.g., downtown core and highway service commercial).
- LU-5** The City shall work with the County to develop joint land use plans and design standards for the unincorporated area within the Sperry Avenue and East Las Palmas Avenue corridors.
- CD-1** The City shall implement the Community Design Guidelines and Downtown Physical Design Plan.
- NR-3** The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program will address at least the following:
- o The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
 - o Criteria for assessing the suitability of agricultural lands to be permanently protected.
 - o Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism.
- NR-5** The City shall investigate a mechanism for funding the acquisition and management of lands for mitigation land bank for impacts to biological and/ agricultural resources.
- AI-1** The Planning Commission shall review the General Plan Policy Document every two years, focusing principally on actions undertaken in the previous two years to carry out the implementation programs of the Plan. The Planning Commission's report to the City Council

shall include, as the Commission deems appropriate, recommendations for amendments to the General Plan. This review shall also be used to satisfy the requirements of Public Resources Code §21081.6 for a mitigation monitoring program.

When weighing the various competing interests reflected in the three Equal-Weight Alternatives, together with the recommended policies provided in the policy document, certain aspects of each Equal-Weight Alternative could be found to be inconsistent with applicable LAFCo policies. For this reason, this impact is considered **significant and unavoidable**.

Additional Mitigation

None available.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The setting for cumulative impacts relating to land use is the General Plan Study Area which lies in the western portion of Stanislaus County and extends from the San Joaquin River to the east and the foothills of the Diablo Range to the west. In accordance with the 20-year and 40-year (buildout) planning growth boundaries established by the Policy Document, potential land use impacts would occur over many years into the future and would likely extend well beyond the 40-year (buildout) timeframe. The physical impacts to the environment associated with buildout in accordance with the Equal-Weight Alternatives are discussed in the topical sections of this EIR and include (but are not limited to):

- Increased traffic
- Air pollution
- Permanent conversion of productive agricultural lands
- Increased noise
- Permanent loss of foraging and other habitat for sensitive species
- Potential impacts to previously undiscovered cultural resources and artifacts
- Increased demand for water, wastewater treatment capacity and other public services

Cumulative Impacts

Impact 5.1-5 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development will contribute to cumulative land use changes with resulting inconsistencies with adopted plans and policies. Moreover, each alternative accommodates a level of development and population that exceeds the level anticipated by adopted plans and policies. These impacts are considered potentially significant.

The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives each designate land for additional urban development surrounding the City that would remain inconsistent with the County General Plan. The conversion of these areas from a largely agricultural to an urban setting could conflict with policies of the Local Agency Formation Commission relating to the protection of prime agricultural land. Unless and until these areas are annexed into the City, the inconsistency

would remain. Although implementation measures and policies recommended by the Policy Document will help reduce the cumulative, long term impacts of such development, impacts relating to consistency with adopted plans would remain **cumulatively considerable and significant and unavoidable**.

The continued development of the City under the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives for either the 20-year or the 40-year (buildout) growth boundaries would also result in land use compatibility impacts. Applying the implementation measures and policies recommended by the Policy Document will reduce these impacts to a less than significant level.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts will help mitigate regional impacts relating to population and housing. However, cumulative impacts will remain cumulatively considerable and unavoidable.

References

“A Town’s Founding,” The Gateway (Patterson Township Historical Society Bulletin), Volume I. Number I . June 1978.

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5.2 POPULATION, HOUSING AND EMPLOYMENT

Introduction

This section discusses the current population characteristics, housing, and employment conditions within the Study Area and provides an assessment of the potential changes that would occur as a result of implementation of the proposed Equal-Weight Alternatives.

Setting

The City of Patterson occupies approximately 5.97 square miles (3,820 acres) in western Stanislaus County, approximately 15 miles southwest of Modesto. The San Joaquin River lies three miles to the east and Interstate 5 crosses the western boundary of the City along the foothills of the Diablo Range which forms the western boundary of the San Joaquin Valley. For a more complete description of the local and regional context of the Study Area, the reader is referred to Section 3.0: Project Description.

Historical Population Growth

The City's January, 2009 population as reported by the California Department of Finance was 21,229. Patterson's most significant historical population growth has occurred in two distinct periods, between 1986 and 1990, and between 2000 and 2007, as shown on Figures 5.2-1 and 5.2-2. Between 2000 and 2006, the City's average annual population growth rate was about 8 percent per year. This dramatic increase can be partly attributed to persons relocating to Patterson from the Bay Area who move to Patterson for its more affordable housing, while continuing to commute long distances to work. Census data from 2000 indicate that 36 percent of Patterson residents employed outside the home travel more than 45 minutes to their place of work.

Since 2007, the economic downturn combined with instability in the banking industry have brought housing construction and population growth to a virtual standstill.

Figure 5.2-1 shows how the populations of Patterson, Stanislaus County, and the State have grown since 1986. Patterson's population growth rate between 2000 and 2006 greatly exceeded that of the County and State.

Figure 5.2-1: Historical Population Growth Rates, 1986 - 2009

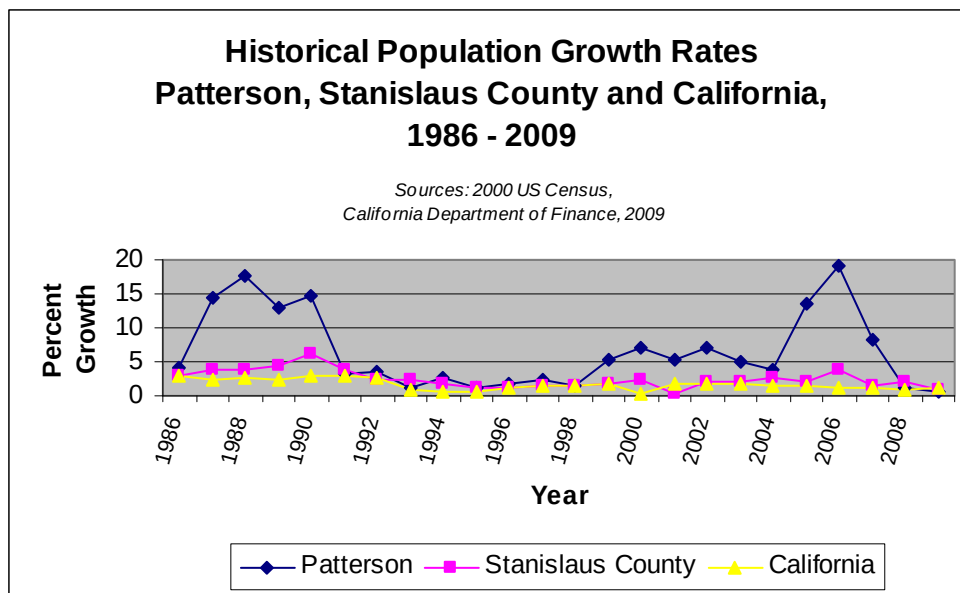
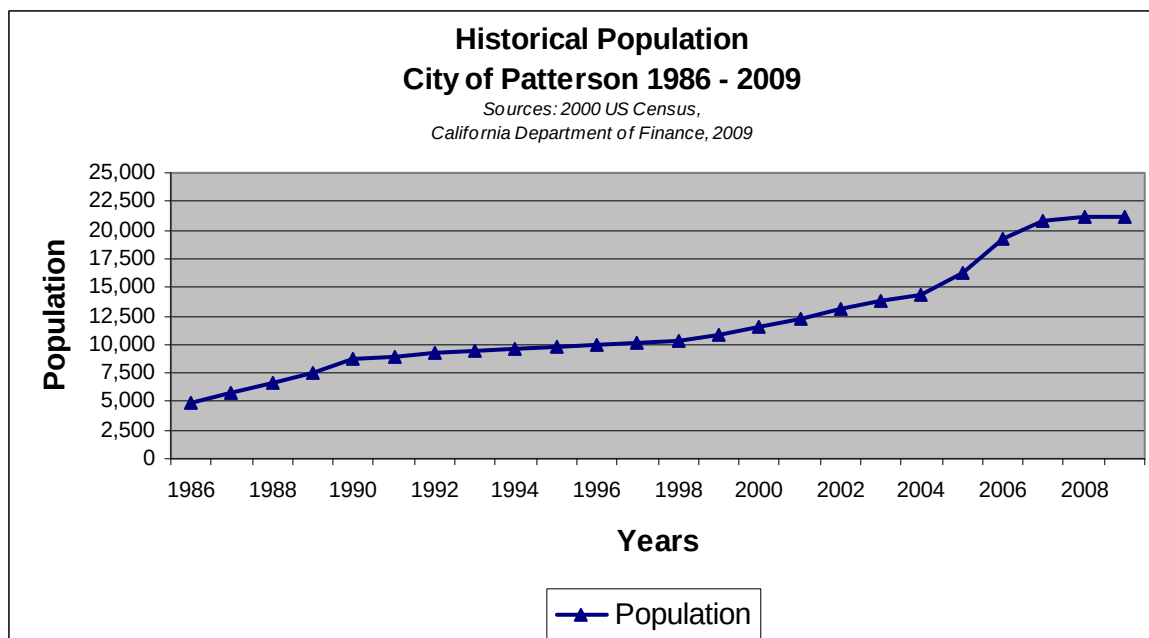


Figure 5.2-2: Historical Population for the City of Patterson. 1986 - 2009



Population Characteristics

Age Distribution

The age structure of the City's population is an important consideration because residents of different ages require different kinds of services and facilities. A younger population will need schools, a wider range of shopping opportunities and programs for active recreation, whereas an older population will likely need health care and smaller, more affordable housing. Table 5.2-1 shows the age distribution of Patterson's population as reported in the 2000 Census.

Table 5.2-1: Age Profiles State, County and City of Patterson, 2000						
Age	California		Stanislaus County		Patterson	
	Total	Percent	Total	Percent	Total	Percent
18 years and younger	9,249,829	27.3	138,125	31.2	4,225	36.0
21 years and over	23,146,248	68.3	287,404	64.3	6,824	58.8
62 years and over	4,253,854	12.6	55,178	12.3	1,002	8.6
65 years and over	3,595,658	10.6	46,697	10.4	840	7.2
Source: US Census, 2000						

The most notable distinction between the age structure of Patterson residents and those of the County and State is the significantly higher percentage of residents under age 18 (36.0 percent) compared to 31.2 percent for the county's and 27.0 percent for the State. Patterson also has slightly fewer elderly residents as a percentage of the population than does the County and State.

Racial and Ethnic Composition

Table 5.2-2 compares the ethnic composition of the population for Patterson with Stanislaus County and the State in 2000. As Table 5.3-3 shows, Patterson differed significantly from both the county and the state in 2000 in the percentage of residents identifying themselves as Hispanic or Latino (57 percent) compared with 31.8 percent for Stanislaus County's and 32.4 percent for the State.

**Table 5.2-2: Ethnic Composition
State, County and City of Patterson, 2000**

Race	California		Stanislaus County		Patterson	
	Total	Percent	Total	Percent	Total	Percent ³
Total Population:	33,871,648	100.0	446,997	100.0	11,606	100.0
White ¹	20,170,059	59.55	309,901	69.3	6,459	55.6
Black or African American ¹	2,263,882	6.68	11,521	2.5	219	1.8
American Indian and Alaska Native ¹	333,346	0.98	5,676	1.2	171	1.4
Asian ¹	3,697,513	10.92	18,848	4.2	244	2.1
Native Hawaiian and Other Pacific Islander ¹	116,961	0.35	1,529	0.3	49	0.4
Hispanic Or Latino ²	10,966,556	32.4	141,871	31.7	6,611	57.0
Source: US Census, 2000						
Notes:						
1. Census respondents who considered their ethnicity to be a single race.						
2. Census respondents who considered their ethnicity to be Hispanic Or Latino versus Not Hispanic or Latino.						
3. Percentages exceed 100 due to Census respondents who considered their ethnicity to be a combination of more than one race, and therefore are included in more than one category.						

Household and Family Composition

Table 5.2-3 provides a summary of family composition for Patterson according to the 2000 Census. As the table indicates, Patterson had a much higher percentage of married-couple families with children under age 18 (42.2 percent) than either the county (29.6 percent) or the State (26.0 percent). The city also had a lower percentage of householders who live alone (13.4 percent) than the County (19.4 percent) or the State (23.5 percent).

**Table 5.2-3: Household Composition
State, County and City of Patterson, 2000**

Household By Type	California		Stanislaus County		Patterson	
	Total	Percent	Total	Percent	Total	Percent
Total Households	11,502,870	100	145,146	100	3,146	100
Family households (families)	7,920,049	68.9	109,517	75.5	2,608	82.9
With own children under 18 years	4,117,036	35.8	59,819	41.2	1,670	53.1
Married-couple family	5,877,084	51.1	81,323	56	2,043	64.9
With own children under 18 years	2,989,974	26	42,984	29.6	1,327	42.2
Female householder, no husband present	1,448,510	12.6	19,859	13.7	382	12.1
With own children under 18 years	834,716	7.3	12,176	8.4	234	7.4
Nonfamily households	3,582,821	31.1	35,629	24.5	538	17.1
Householder living alone	2,708,308	23.5	28,211	19.4	422	13.4
Householder 65 years and over	892,207	7.8	11,408	7.9	220	7
Source: US Census, 2000						

Housing

Housing Stock Growth and Composition

Before 1980, Patterson's housing stock was composed principally of single-family homes. Table 5.2-4 shows that the percentage of single family residences increased throughout the 1980s and 1990s representing more than three-quarters (84 percent) of the city's total units in 2000. The percentage of single family dwellings in Patterson in 2000 was higher than Stanislaus County (78.6 percent) and significantly higher than the statewide percentage (64.8 percent). The data also show a significant increase in multi-family housing between 1990 and 2000.

**Table 5.2-4: Housing Stock Composition,
City of Patterson 1980, 1990 and 2000**

Unit Type	1980		1990		2000	
	Number	Percent	Number	Percent	Number	Percent
Single family	952	70.5	2,251	83.3	3,168	84.1
2-5 Units	131	9.7	138	5.1	98	2.6
5+ units	192	14.2	116	4.3	394	10.5
Mobile Homes	76	5.6	198	7.3	106	2.8
Total:	1,351	100.0	2,703	100.0	3,766	100.00
Source: 1980, 1990 and 2000 US Census						

Table 5.2-5: Housing Stock Composition, City of Patterson, Stanislaus County and State of California, 2000			
Unit Type	City of Patterson	Stanislaus County	State of California
	Percent	Percent	Percent
Single family	84.1	78.6	64.8
2-5 Units	2.6	6.2	8.2
5+ units	10.5	9.4	22.6
Mobile Homes	2.8	5.5	4.1
Total:	100.00	100.00	100.00
Source: 2000 US Census			

Table 5.2-6 compares Patterson's population and housing growth between 1990 and 2009 to that of the County and State. As the table indicates, total growth in the number of housing units in Patterson has roughly paralleled population growth over the 19-year period, although housing has lagged slightly behind. Table 5.2-6 shows that Patterson's overall housing stock grew at a relatively low rate until 1999 when an upward trend began with the first dwellings constructed in the Heartland Ranch project. Between 2000 and 2006, the City's average annual growth rate was about 8 percent, peaking in 2006 at about 16 percent. County growth rates were comparatively low during the same period (i.e. 2.1 percent between 2000 and 2007). Since 2007, the economic downturn and instability in the financial markets have drastically slowed new home construction, at least temporarily.

Table 5.2-6: Population and Dwelling Unit Growth,
City of Patterson and Stanislaus County

Year	City of Patterson				Stanislaus County			
	Population	Annual Growth (%)	Housing Units	Annual Growth (%)	Population	Annual Growth (%)	Housing Units	Annual Growth (%)
1990	8,626	--	2,703		370,522		132,027	
1991	8,975	3.9	2,772	2.5	380,900	2.7	136,465	3.3
1992	9,300	3.5	2,813	1.5	392,700	3.0	138,837	1.7
1993	9,400	1.1	2,813	0.0	401,600	2.2	140,965	1.5
1994	9,650	2.6	2,844	1.1	408,300	1.6	142,762	1.3
1995	9,750	1.0	2,880	1.3	413,000	1.1	144,477	1.2
1996	9,925	1.8	2,918	1.3	417,500	1.1	145,824	0.9
1997	10,150	2.2	2,965	1.6	423,200	1.3	147,088	0.9
1998	10,300	1.5	2,975	0.3	429,100	1.4	148,694	1.1
1999	10,850	5.1	3,109	4.3	436,100	1.6	149,966	0.8
2000	11,606	6.5	3,262	4.7	446,997	2.4	150,807	0.6
2001	12,225	5.1	3,404	4.2	458,612	2.5	153,262	1.6
2002	13,092	6.6	3,622	6.0	472,654	3.0	156,824	2.3
2003	13,730	4.6	3,777	4.1	484,496	2.4	159,724	1.8
2004	14,257	3.7	3,918	3.6	494,747	2.1	162,925	2.0
2005	16,187	11.9	4,484	12.6	504,478	1.9	167,048	2.5
2006	19,262	16.0	5,412	17.1	513,441	1.7	171,719	2.7
2007	20,875	7.7	5,932	8.8	521,497	1.5	175,040	1.9
2008	21,090	7.8	6,001	1.2	522,313	1.2	176,624	0.9
2009	21,229	4.0	6,007	0.01	526,383	0.8	177,545	0.52
Source: California Department of Finance, and CMCA								

Housing Tenure

Tenure refers to whether a household consists of property owners or renters. Table 5.2-7 shows the tenure of Patterson's housing units in 1990, 2000 and 2003. It should be noted that the numbers in the table reflect only occupied units. Home ownership appears to have peaked in 2000 and declined through 2003. More recent data would likely show an even lower percentage of ownership as a result of a sharp increase in foreclosures occurring in the City since 2007.

Table 5.2-7: Housing Tenure
City of Patterson and Stanislaus County
1990, 2000 and 2003

Year	City of Patterson				Stanislaus County			
	Owners		Renters		Owners		Renters	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1990	1,756	68.4	810	31.6	76,103	60.7	49,272	39.3
2000	2,145	69.3	951	30.7	89,912	61.9	55,341	38.1
2003	2,522	65.6	1,323	34.4	92,327	62.1	56,347	37.9
Source: 1990, 2000 US Census, Datum Populus								

As Table 5.2-7 indicates, Patterson has historically had a higher percentage of owners than Stanislaus County, and this relationship remained true as of 2003.

Housing Costs

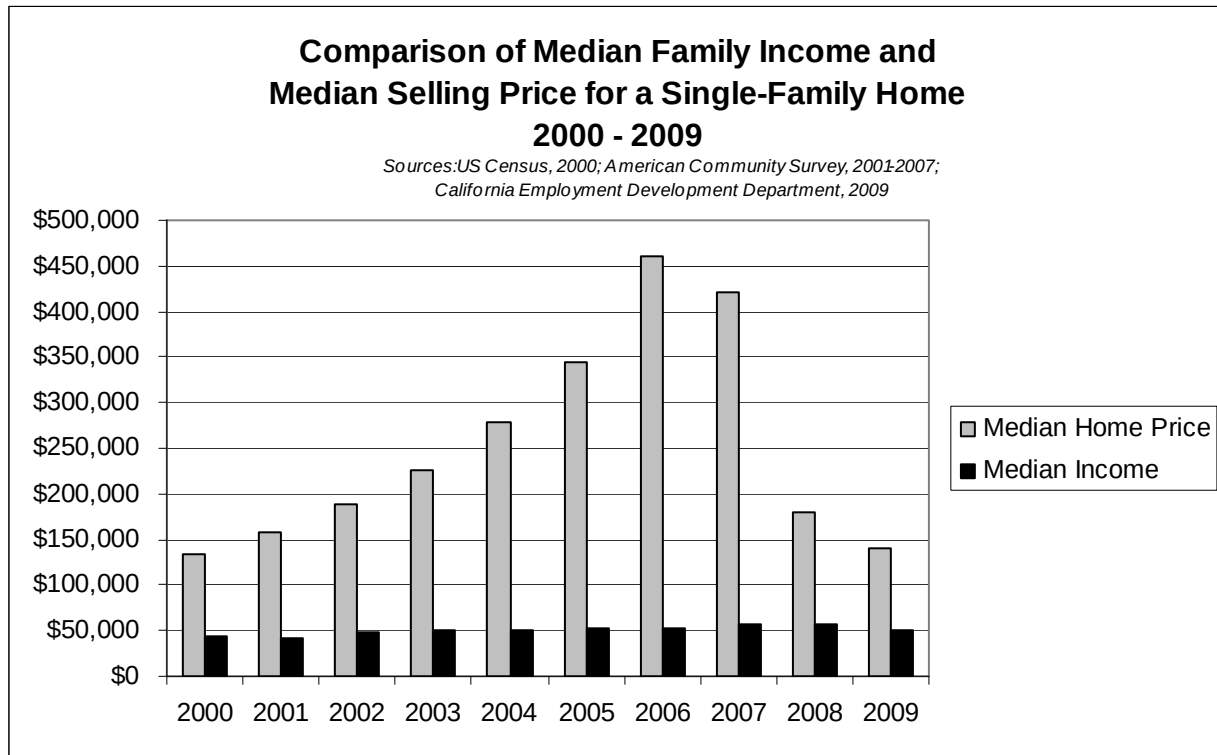
The cost of housing has become an increasingly critical issue in California. Since the late 1970s, the statewide housing market has experienced dramatic price increases. Many housing markets in California (particularly in the Bay Area and Southern California) have seen rapid inflation of housing costs because of increasingly limited supplies of land suitable (or available) for residential development. Because of the vast amount of undeveloped land available in the Central Valley, housing remained relatively inexpensive in Valley communities compared to the larger urban areas until the late 1990s when the difference in cost between the Valley and the Bay Area began to narrow.

The increased demand for housing and higher incomes of Bay Area wage-earners have led to rising housing prices in Patterson. Local wages in Patterson and throughout Stanislaus County have not increased at the same rate as housing prices. As a result, it was becoming increasingly difficult for locally employed residents to afford to purchase or rent housing in Patterson up until 2007. In 2007 the country fell into the worst recession since World War II, fueled in part by the questionable practices of large mortgage lending institutions. Foreclosures throughout the nation increased alarmingly, along with a corresponding drop in home values. These problems were particularly acute in the San Joaquin Valley where the loan default rate and the devaluation of housing were among the highest in the nation. In 2006, the median sales price for a single family home was about \$460,000 in the City, according to the Central Valley Association of Realtors. Three years later, the median sales price had dropped to about \$150,000. Since July of 2009, sales of existing homes in Patterson have begun to increase which may suggest the housing market is stabilizing.

Table 5.2-8: Median Sale Price for Single-Family Dwellings, City of Patterson (1994-2008)	
Year	Median Sales Price
2009*	\$150,000
2008**	\$179,000
2007	\$420,000
2006	\$460,000
2005	\$343,610
2004	\$279,470
2003	\$225,210
2002	\$189,210
2001	\$157,250
2000	\$133,380
1999	\$120,600
1998	\$101,000
1997	\$112,700
1996	\$111,530
1995	\$107,900
1994	\$108,500
Source: Central Valley Association of Realtors	
* Through September, 2008	
** Through November, 2009	

The relationship between rising housing costs and median family income is illustrated in the following graph. From 1999 to 2006 housing prices rose sharply while incomes remained relatively flat, thereby widening the affordability gap for all households, but especially for households with extremely low, very low and lower incomes. Since 2007, single-family housing prices have dropped dramatically, making homes more affordable to lower income wage-earners.

Figure 5.2-3: Comparison of Median Home Price and Incomes



Employment

Economic and Employment Characteristics

Table 5.2-9 compares 1990 US Census data for employment by industry with year 2000 data, the most recent data available. Table 5.2-8 indicates that the distribution of employment by industries in 2000 is more or less evenly distributed among several industry groups, when compared to 1990, representing a continued shift of employment toward service industries and away from manufacturing and farming. For example, the percentage of the workforce employed in manufacturing dropped from 21% in 1990 to about 11% in 2000. Likewise, the percentage employed in professional, scientific and management positions nearly doubled, while the percentage of residents employed in the retail trade dropped from about 16% to about 11% in 2000.

The shift toward a service-oriented economy is underscored by data relating to occupations (Table 5.2-10). As Table 5.2-10 shows, the percentage of residents whose occupation is considered management, professional and related occupations, increased from 15% in 1990 to about 25% in 2000, while the percentage of residents occupied in the production, transport and movement of materials decreased by about 7% from 1990 to 2000.

Table 5.2-9: Employment By Industry
City of Patterson, 1990 and 2000

Industry	Total Workers		Percent	
	1990	2000	1990	2000
Agriculture, forestry, fishing and hunting, and mining	342	428	10.5%	10.0%
Construction	312	443	9.6%	10.4%
Manufacturing	687	488	21.0%	11.4%
Wholesale trade	110	267	3.4%	6.2%
Retail trade	546	489	16.7%	11.4%
Transportation and warehousing, and utilities	249	234	7.6%	5.5%
Information	0	129	0.0%	3.0%
Finance, insurance, real estate, and rental and leasing	135	117	4.1%	2.7%
Professional, scientific, management, administrative, and waste management services	158	370	4.8%	8.7%
Educational, health and social services	391	713	12.0%	16.7%
Arts, entertainment, recreation, accommodation and food services	15	390	0.5%	9.1%
Other services (except public administration)	148	129	4.5%	3.0%
Public administration	173	80	5.3%	1.9%
Source: US Census, 1990 and 2000 Notes: Employed persons 16 years and older.				

Table 5.2-10: Employment By Occupation
City of Patterson

Occupation	Total Workers		Percent	
	1990	2000	1990	2000
Management, professional, and related occupations	513	1,087	15.6%	25.4%
Service occupations	375	565	11.4%	13.2%
Sales and office occupations	908	905	27.6%	21.2%
Farming, fishing, and forestry occupations	318	374	9.7%	8.7%
Construction, extraction, and maintenance occupations	452	676	13.7%	15.8%
Production, transportation, and material moving occupations	722	670	22.0%	15.7%
Source: US Census, 1990 and 2000 Notes: Employed persons 16 years and older.				

Major Employers in Patterson

As shown in Table 5.2-11, Patterson Frozen Foods, with 750 employees, is Patterson's major employer. Other large employers include CVS Drug Stores (650 employees), the Patterson Unified School District (376 employees) and Kohl's Department Stores (180).

Table 5.2-11: Major Employers In Patterson		
Name of Company	Product Type	# of Employees
Manufacturing		
Patterson Frozen Foods	Frozen Produce	725
Designed Mobile Systems, Inc.	Modular Buildings	130
John Potter Specialty Foods	Fruit & Nut Processor	100
Bonacich Orchards	Sun Dried Tomatoes/Apricots	250
Traina Dried Fruits	Sun Dried Tomatoes/Fruits	192
Non-Manufacturing		
CVS	Distribution Center	650
Kohl's	Distribution Center	180
Lucich-Santos Farms	Fruit Packer	158
Patterson Unified School District	Educational District	376
Diablo Grande	Golf Resort & Restaurant	137
Juan Salinas Labor Contractor	Agri-Business Contractor	100
Saul Banda Labor Contractor	Agri-Business Contractor	100
Pacific Sod	Turf Grass	51
Save Mart Supermarket	Retail Grocer	77
City of Patterson	Municipal Government	52
Source: City of Patterson, 2009		

The Ratio of Jobs to Housing

In October, 2009, an estimate prepared City staff concluded there were 3,914 jobs in Patterson. According to the Department of Finance, there were 6,007 dwelling units in January, 2009 which makes the jobs to housing ratio about 0.65. A ratio less than 1.0 means there are more dwellings than jobs in Patterson, which could result in employed persons leaving the City each day for work. Since the vast majority of these commute trips are by private motor vehicle, the result is increased air pollution, traffic, and noise, and a loss of the day-time expenditures in local businesses by employees for such things as food, and entertainment.

Regulatory Setting

Federal Regulations

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970

The Uniform Act, passed by Congress in 1970, is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The Uniform Act's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects. 49 CFR Part 24 is the government-wide regulation that implements the Uniform Act.

Title 24 – Housing and Urban Development Part 42

Displacement, Relocation Assistance, and Real Property Acquisition for HUD and HUD-Assisted Programs

Section 104(d) of the Housing and Community Development Act provides minimum requirements for federally funded programs or projects when units that are part of a community's low-income housing supply are demolished or converted to a use other than lower moderate-income dwellings.

Section 104(d) requirements include:

- Replacement, on a one-for-one basis, of all occupied and vacant occupiable low- or moderate-income dwelling units that are demolished or converted to a use other than low- or moderate-income housing in connection with an activity assisted under the act, and
- Provision of certain relocation assistance to any lower-income person displaced as a direct result of the following activities in connection with federal assistance:
 - Demolition of any dwelling unit, or
 - Conversion of a low- or moderate-income dwelling unit to a use other than a low- or moderate-income residence.

Section 104(d) requirements are triggered by the use of HOME, CDBG, Section 108 Loan Guarantee, or UDAG funding in a project involving the demolition or conversion of low- or moderate-income housing.

State Regulations

California Relocation Statute – Government Code Section 7260

The California Relocation Statute is a California law that establishes minimum standards for state funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The statute's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for state funded projects. The statute is intended for the benefit of displaced persons to ensure that such persons receive fair and equitable treatment and do not suffer disproportionate injuries as the result of programs designed for the benefit of the public as a whole. Title 25, Division 1, Chapter 6 of the California Code of Regulations provides the regulatory guidelines to enforce the statute.

Title 25 Division 1 Chapter 6 Subchapter 1 – Relocation Assistance and Real Property Acquisition

This section of Title 25 provides guidelines to assist public entities in the development of regulations and procedures implementing Government Code Section 7260. The guidelines are designed to carry out the following policies of Section 7260:

- To ensure that uniform, fair, and equitable treatment is afforded persons displaced from their homes, businesses, or farms as a result of the actions of a public entity in order that such persons shall not suffer disproportionate injury as a result of action taken for the benefit of the public as a whole; and
- In the acquisition of real property by a public entity, to ensure consistent and fair treatment for owners of real property to be acquired, to encourage and expedite acquisition by agreement with owners of such property in order to avoid litigation and relieve congestion in courts, and to promote confidence in public land acquisition.

Standards of Significance

According to the CEQA Guidelines Section 15131(a), economic or social effects of a project are not treated as significant effects on the environment. If the proposed project were to cause physical changes as a result of economic or social changes, then the physical effects (such as the destruction of habitat resulting from housing construction to accommodate increased population) could be considered a significant environmental effect.

A population and housing impact is considered significant if implementation of the project would result in any of the following:

1. Induce substantial growth or concentration of population in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure) that results in a physical effect on the environment.
2. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
3. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Growth inducing impacts are specifically addressed in Section 7 of this EIR.

Project Impacts and Mitigation Measures

Methodology

The following analysis of impacts relating to population, housing and employment relies on existing and projected demographic, housing and employment data from sources that include:

- The 2000 US census of Housing and Population
- The California Department of Finance
- The City of Patterson
- Stanislaus County
- The Stanislaus Council of Governments (StanCOG)

Increased Population, Housing and Employment – General Plan Study Area

Impact 5.2-1 Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Alternatives within the 20-year and 40-year growth boundaries will result in an increase in population, housing and employment which in turn will result in direct and indirect physical impacts to the environment. This impact is considered potentially significant.

Buildout of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would each result in an increase in population, housing, and employment within the Study Area. As shown on Table 5.2-12, the amount of additional land designated for urban development ranges from 7,830 acres (the Compact Development Alternative) to 12,480 (the Planning Commission Environmental Review Alternative) over forty years. The resulting dwelling units, population and employment associated with each of the Equal-Weight Alternatives is summarized on Table 5.2-13.

The projected increase in urban development and the resulting increase in population, housing and employment will result in direct and indirect physical impacts to the environment. Direct impacts include noise, traffic air pollution and potential erosion and water quality impacts associated with construction activities, as well as the conversion of productive agricultural soils. Indirect impacts include an increased demand for water, wastewater collection and treatment, schools, police and fire protection, as well as increased traffic, air pollution and noise. Direct and indirect impacts associated with the continued development of the City in accordance with the Equal-Weight Alternatives are assessed in sections 5.1 through 5.15 of this EIR.

Table 5.2-12: Comparison of Alternatives
By Land Use Category,
20- and 40-Year Planning Growth Boundaries Combined
(Gross Acres¹)

Land Use Category	1992 General Plan	Compact Development	Jobs Emphasis	PC Env. Review Plan
Mixed-Use Hillside Development ²	0	0	650	650
Neighborhood Village ³	0	2,141	3,644	4,568
Estate Residential	388	176	1,038	1027
Low Density Residential	1684	1,303	1,303	1303
Medium Density Residential	389	369	369	369
High Density Residential	58	58	58	139
Downtown Residential	203	203	203	203
Downtown Core	141	69	69	69
Regional Commercial	0	0	0	0
General Commercial	136	481	792	487
Highway Service Commercial	91	70	113	113
Neighborhood Commercial	0	0	0	0
Medical/Professional Office	6	6	6	6
Light Industrial	979	1,875	1,701	2124
Heavy Industrial	223	153	153	153
Public/Quasi-Public ⁴	375 ⁴	422	444	443
Parks and Recreation	258	258	258	258
Other ⁵	36	79	664	533
Total Acres:	4,967	7,664	11,465	12,446
Source: CMCA, 2009				
Notes:				
1. Gross acres refers to the total area inclusive of streets.				
2. The Mixed-Use Hillside Development land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.4.				
3. The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3.				
4. Includes 145 acres associated with the wastewater treatment plant.				
5. Land not classified by a land use designation. Includes canals, Interstate 5 right-of-way and other land.				

Table 5.2-13: Summary Development Holding Capacity of Equal Weight Alternatives

Attributes	Existing in 2009	Compact Development		Jobs Emphasis		PC Env. Review Plan	
		Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	6,007	15,153	18,992	15,711	22,151	21,687	25,589
Population	21,229	46,360	57,510	47,831	66,673	64,389	75,863
Commercial Floor Area	2,800,000	6,081,011	7,586,263	10,350,468	12,639,691	6,346,810	8,566,036
Industrial Floor Area	2,827,236	14,585,213	16,562,837	15,046,949	15,046,949	17,915,897	18,715,572
Services Floor Rea	3,027,420	5,205,420	5,749,920	5,205,420	5,749,920	5,205,420	5,749,920
Jobs	3,914	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	0.65	1.42	1.34	1.69	1.30	1.19	1.13
Notes:							
1. Source: CMCA, 2009							

Population

The population of each Equal-Weight Alternative is compared graphically by Figure 5.2-4, below.

Figure 5.2-4: Population of Alternatives

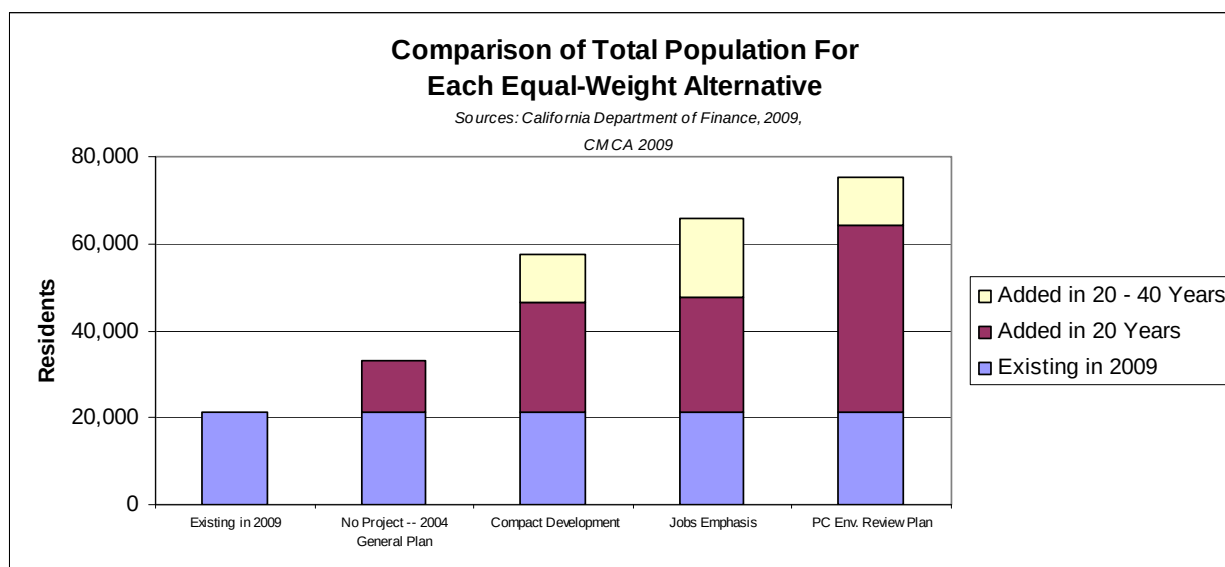


Table 5.2-14 compares existing (2009) and projected 2030 populations for each alternative with the 2030 population adopted by the Stanislaus Council of Governments for the preparation of the 2011 Regional Transportation Plan. As seen in Table 5.2-14, each of the Equal-Weight Alternatives will accommodate a higher population for the City of Patterson by 2030 than the population being used by StanCOG.

Table 5.2-14: Existing and Projected Population				
Alternative	Existing (2009) ¹	2030 Population ²	StanCOG 2030 Population Projection for Patterson ³	Difference
Compact Development	21,229	46,360	39,067	7,293
Jobs Emphasis	21,229	47,831	39,067	8,764
PC Env. Review Plan	21,229	64,389	39,067	25,322
Notes:				
1. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009				
2. CMCA, 2009				
3. December 9, 2009 StanCOG Population and Employment Projections, Totals Less Growth In Unincorporated County from Measure E.				

Housing

Each of the Equal-Weight Alternatives will accommodate additional housing as summarized on Table 5.2-16 (see also, Table 3.0-11). Policies recommended in the Draft Policy Document require a range of housing product types to be provided in residential expansion areas. Although the precise number of affordable units to be allocated to the City in the future under the Regional Housing Needs Assessment is unknown, the intent of policies in the Draft Policy Document is to provide a range products affordable to a wide range of incomes, and enable the City to achieve its regional fair share of affordable housing.

Table 5.2-16: Existing and Projected Dwelling Units, By Land Use Alternative

	Existing ¹	Compact Development		Jobs Emphasis		PC Env. Review Plan	
		Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years	Total In 20 Years	Total In 40 Years
Totals:	6,007	15,153	18,992	15,711	22,151	21,687	25,589
Notes: 1. Existing dwelling units as of January, 2009. Sources: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009; CMCA, 2009							

Employment

Each of the Equal-Weight Alternatives designates land for additional employment-generating land uses. Table 5.2-17 provides a summary of potential employment accommodated by each alternative. For a more complete description of future employment by land use category, the reader is referred to Section 3.0 – Project Description.

As with the development of housing, the number of jobs will depend on the timing of commercial and industrial development and the precise type and nature of new employment-generating businesses.

Table 5.2-17: Existing and Projected Employment By Land Use Category

	Existing ¹	No Project – 1992 General Plan	Compact Development		Jobs Emphasis		PC Env. Review Plan	
		New Employees In 20 Years ²	New Employees In 20 Years	Total Employees In 40 Years	New Employees In 20 Years	Total Employees In 40 Years	New Employees In 20 Years	Total Employees In 40 Years
Total Employment:	3,914	14,541	21,491	25,374	26,601	28,821	25,714	28,796
Notes: 1. Existing employment as determined by the City of Patterson, 2009 2. Remaining vacant acres for commercial, industrial and service land uses times employment per acre. Sources: City of Patterson and CMCA, 2009								

The Ratio of Jobs to Housing

One of the objectives of the General Plan update is to work toward a higher ratio of jobs to housing in Patterson as a strategy to reduce and/or shorten motor vehicle trips and commute times and to improve the local economy. Each alternative designates land for employment and housing that would achieve a different measure of jobs to housing in the future as shown in Table 5.2-18, and assuming the number of jobs for employment-generating land uses approaches the assumptions made in Table 3.0-17.

Table 5.2-18: Summary Of Housing and Employment of Equal Weight Alternatives

Attributes	Compact Development		Jobs Emphasis		PC Env. Review Plan	
	Total in 20 Years	Total At Buildout	Total in 20 Years	Total At Buildout	Total in 20 Years	Total At Buildout
Dwelling Units	15,153	18,992	15,711	22,151	21,687	25,589
Employment	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	1.42	1.34	1.69	1.30	1.19	1.13
Notes:						
1. Source: CMCA, 2009						

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact of future population growth, including the following:

LU-1.1 Development strategy. The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:

- A mix of housing products and densities serving the broadest range of households, incomes and ages;
- A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- Short blocks with a substantial tree canopy shading the street and sidewalk;
- Connectivity to surrounding neighborhoods, regional retail centers and employment;
- A sense of personal safety;
- Elements that foster the sustainable use of scarce or non-renewable resources.

LU-1.7 Preferences for the timing of urban development. The Land Use Diagram designates areas expected to be developed within a 20 year and 40 year buildout timeframe. These boundaries are not permanent but express the City’s preferences for the timing of future development,

based on the availability of public services prescribed by the City's infrastructure master plans. In general, the preferred timing of urban development in accordance with the General Plan is as follows:

- a. First Priority—Vacant or underutilized areas within the current City limits;
- b. Second Priority—Vacant or underutilized areas within the City's currently-adopted sphere of influence;
- c. Third priority—Vacant or underutilized areas within the 20-year planning boundary;
- d. Fourth Priority—Areas outside the 20-year planning boundary.

- LU-1.9 Managing the pace of development.** The City shall link the rate of growth in Patterson to the provision of adequate services and infrastructure, including schools. The City shall, through specific plans and/or planned development plans for major projects, ensure that urban development proceeds in an orderly fashion and in pace with the expansion of public facilities and services.
- LU-1.10 Managing the relationship between jobs and housing.** The City shall monitor residential and non-residential development and encourage adjustments as necessary in land use designations and the rate of project approvals to promote a reasonable citywide balance between new employment-generating development and housing development and to minimize traffic impacts.
- LU-1.13 Status of land prior to urban development.** Land within the General Plan Area shall ultimately be developed to urban standards described in Part I – Land Use and Development Standards. Pending connection to City services, such land shall remain in agricultural, open space, or other low intensity uses.
- LU-1.14 Development of unincorporated land within the General Plan area.** The City shall encourage the County to require development on unincorporated lands within the Patterson Study Area to be developed to standards consistent with City standards, including architectural compatibility, provision of adequate infrastructure improvements, and provision of City sewer service, and to ensure that such development adequately mitigates potential adverse impacts to the City.
- ED-3.1 Jobs-to-housing ratio.** The City shall maintain an adequate retail, business, and industrial land supply to meet a jobs-to-housing ratio of 1.0.
- ED-3.2 Workplace alternatives.** The City shall encourage the use of alternative workplaces by making land use designations and zoning ordinances compatible with qualified home-based businesses and telecommuting.
- ED-3.3 Housing choices.** The City shall provide for and encourage a range of housing choices—including live/work units—through land use designations and zoning ordinances.

Housing Element Policies and Programs

Policy 1-3-1:	Assess the need for emergency shelters.
Program:	Working with local and regional resources, quantify local homeless populations and others with a need for emergency shelter.
Responsibility:	Community Development Department.
Timing:	January 2010.
Program:	Continue to actively support efforts of homeless service providers in establishing additional short-term beds for all segments of the homeless population including specialized groups such as those with chronic mental illness and the disabled by ensuring that development standards will only subject shelters to the same development and management standards that apply to other allowed uses in the approved zones.
Responsibility:	Community Development Department.
Timing:	January 2010.
Policy 1-3-2:	Amend the Zoning Ordinance to allow Emergency / Homeless Shelters in at least one Zoning District and allow transitional and supportive housing as a permitted use, consistent with SB 2 (Government Code Section 65583 and 65589.5)
Program:	Research available sites to ensure adequate size exists for need. Amend the Light Industrial and Heavy Industrial Zoning Ordinance to allow emergency shelters as a permitted use consistent with SB 2.
Responsibility:	Community Development Department.
Timing:	January 2010.
Program:	Determine that requirements and standards for Emergency / Homeless Shelters are reasonable and not onerous or detrimental to the development of same consistent with SB 2 by ensuring that development standards will only subject shelters to the same development and management standards that apply to other allowed uses in the approved zones.
Responsibility:	Community Development Department.
Timing:	January 2010.
Program:	Amend the Low Density Residential, Medium Density Residential, High Density Residential, and Downtown Residential zones to allow transitional and supportive housing as a permitted use consistent with SB 2.

Responsibility:	Community Development Department.
Timing:	January 2010.
Policy 1-3-3:	Evaluate the need to provide housing for single individuals, working poor, homeless, senior citizens, students and others in need of basic, safe housing to prevent or reduce the incidence of homelessness in areas near service providers, public transportation, and service jobs.
Program:	Investigate incentives and reporting procedures that can be implemented to encourage and monitor the development of housing opportunities for specialized housing needs.
Responsibility:	Community Development Department.
Timing:	January 2010.
Program:	Publish and update quarterly, with assistance from the Housing Authority, a comprehensive listing of units reserved for lower income and disabled households in the City.
Responsibility:	Community Development Department.
Timing:	January 2010.
Policy 1-3-4:	Continue to advocate housing for persons with disabilities.
Program:	Use federal and State funds to provide new units of supportive housing for persons with disabilities using HOME and CDBG funds or encourage and assist others in doing so.
Program:	Continue to permit persons with disabilities of any age to locate in senior citizen independent living facilities that receive federal funds.
Responsibility:	Community Development Department.
Timing:	On-going – The City receives federal CDBG and HOME funds annually through the Stanislaus County Consortium.
Program:	Support the Stanislaus County Housing Authority's plans for the 16 unit expansion of the Las Palmas Senior Apartments with the use of CDBG, HOME, and other available funding.
Responsibility:	Community Development Department.
Timing:	June 2014

Policy: 1-3-5:	Continue to provide accessibility and mobility enhancing device grants to persons with disabilities.
Program:	Continue to provide the housing rehabilitation program to provide a one-time grant or loan to extremely low and very low income disabled persons and senior citizens to improve accessibility and safety.
Responsibility:	Community Development Department.
Timing:	On-going.
Policy 1-3-6:	Ensure that the City complies with the provisions of SB 520 (Chapter 671 of the government code) to remove constraints to housing or provide reasonable accommodation to housing for persons with disabilities.
Program:	Continue to monitor the City's ordinances, codes, policies, and procedures to ensure that they comply with the "reasonable accommodation" for disabled provisions.
Responsibility:	Community Development Departments.
Timing:	Annually.
Policy 1-3-7:	Assess the need for additional farmworker housing in the City.
Program:	Work with Stanislaus County Housing Authority, farm owners, farm labor contractors, and other stakeholders to determine the number of farmworkers who may need housing. The resulting report should address permanent, seasonal and migrant workers.
Responsibility:	Community Development Department.
Timing:	January 2010.
Policy 1-3-8:	Encourage the development of multi-family housing.
Program:	Meet with developers and non-profit developers to develop regulatory and financial incentives to encourage the development of multi-family housing, including larger bedroom sizes (i.e. 3-4 bedrooms).
Responsibility:	Community Development Department.
Timing:	June 2010.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to traffic, air, and noise impacts by (among other things) promoting a balance among jobs, housing and shopping, and by facilitating alternate modes of transportation. Nevertheless, implementation of any of

the Equal-Weight alternatives would allow for a substantial increase in population, housing units, and employment in the City of Patterson and the General Plan Study Area. This increase would have a significant adverse impact on the physical environment (as documented in the topical sections of this EIR, sections 5.1 through 5.15) regardless of the policies listed above. Therefore, this impact is considered **significant and unavoidable**.

Displacement of Persons or Housing

Impact 5.2-2 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives each designate land for additional urban development within a 20-year and 40-year growth boundary. Urban development accommodated by these alternatives could result in the displacement of existing dwelling units as the City expands outward. Although existing dwelling units will be displaced, they will be replaced by a substantial number of new units in a variety of densities and products. Therefore, this impact is considered less than significant.

Table 5.2-19 provides a summary of existing housing that could be displaced by each alternative, along with the total number of dwelling units accommodated by each at buildout of the 20-year and 40-year growth boundaries. The number of existing dwelling units potentially displaced ranges from 488 for the Compact Development Alternative, to as many as 669 for the PC Env. Review Alternative.

Table 5.2-19: Summary of Potential Displacement of Housing, By Equal-Weight Alternative			
Alternative	Total Dwelling Units Accommodated By Alternative ¹	Potential Units Displaced	Percentage of Total
Compact Development	18,992	488	2.5%
Jobs Emphasis	22,151	581	2.6%
PC Env. Review Plan	25,589	669	2.6%
Notes:			
1. 20 Year and 40 year boundaries combined. See Table 3.0-10 in Chapter 3.0 -- Project Description.			

While implementation of any of the Equal Weight Alternatives will not, in and of itself, result in the construction of any new development, it would change the existing land use designations to allow an intensification of development, including housing. Additionally, the Circulation Diagram identifies a circulation system that would require the construction of new roadways within the Study Area which in turn may require the removal of some housing units and/or businesses, thereby displacing persons. However, such displacement is expected to be minor, given that roadway sizing and alignments are designed to avoid impacts to existing development areas.

Adoption of any of the Equal-Weight Alternatives would not, in and of itself, displace substantial numbers of housing units or people, nor would they re-designate existing residential areas to land uses

that would require the relocation of residents. If relocation is required, State and federal laws require due compensation for persons required to relocate as a result of redevelopment projects carried out by the City or any projects that use federal or state funding. Any private development that may occur would pay the fair market price for any land/housing acquired as a result of project development. Therefore, although some isolated displacement of persons or housing may result, due compensation will be provided in accordance with law to offset any cost-related effects.

In summary, although some existing units and their associated occupants will be displaced over the timeframe of the General Plan (40 or more years) the number in each case is small in comparison with the number of units and population accommodated by each alternative. Therefore, this impact is considered less than significant.

Additional Mitigation

None are required.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for population, housing and employment includes Stanislaus, Merced and San Joaquin Counties and the cities within those counties as well as the General Plan Study area. As shown in Table 5.2-12, the buildout populations range from about 46,000 under the Compact Development Alternative, to about 76,000 for the PC Env. Review Alternative. It should be noted that the increase associated with the Compact Development, Jobs Emphasis and PC Environmental Review Plan alternatives would likely occur over a longer timeframe than 40 years, based on the historic rate of population growth within the City, although the figures used accommodate buildout of the general plan.

West Park

The West Park Specific Plan covers an area of about 4,800 acres that includes the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility (CLAF) and approximately 3,276 acres of undeveloped land surrounding the former CLAF. The project site is located south of the City of Patterson between Interstate 5 and the California Aqueduct and State Route 33.

A preliminary redevelopment plan was prepared by County Planning/Redevelopment staff by direction of the County Board of Supervisors (Redevelopment Agency). A General Plan Amendment was initiated in March 2006 along with master development and airport layout planning process steps. A master development plan was initiated by the Board of Supervisors in April, 2008, allowing the process to begin. A Notice of Preparation (NOP) of a draft EIR was issued on June 18, 2008. The environmental analysis is proceeding forward as of November, 2008.

The Specific Plan envisions the following major components:

- Development of an inland port and short-haul rail service to and from the Port of Oakland;
- Development of industrial, business park, and distribution land uses on approximately 4,800 acres, including the former CLAF;
- Development of a general aviation airport on the former CLAF property, and
- Various infrastructure and public facility improvements to support the project.

According to the master development plan, buildout of the proposed project would occur in four phases over a period of 30 years. Initial development under Phase 1 of the proposed project would include between four and five million square feet of building space, including 250,000 to 500,000 square feet of speculative building space. Among improvements that would be required to support Phase 1 of the project are interim water and wastewater facilities and a new fire station occupying approximately one acre. The precise location of these facilities on the project site has not yet been determined.

The Notice of Preparation circulated suggests that the West Park project could accommodate as many as 37,000 jobs at buildout.

Diablo Grande

Diablo Grande is planned community in the foothills southwest of Patterson, several miles west of Interstate 5 on Oak Flat Road. The project covers approximately 16,800 acres, although much of the area would remain undeveloped. Plans for the community include five golf courses, condominiums, and 10-acre home sites. Other amenities include equestrian trails as well as a hotel and restaurant, and accommodations for tourists and corporate executives attending retreat-like conferences.

The Diablo Grande Specific Plan was originally submitted to Stanislaus County in December of 1990. The Specific Plan was subsequently amended many times in response to environmental issues. Ultimately, the Specific Plan was adopted by the Board of Supervisors on October 26, 1993. Since the Diablo Grande project was approved, both Phase I golf courses and the clubhouse have been constructed. In addition, a large portion of the project entry road has been constructed along with the pump stations and water lines.

Following approval of the Specific Plan, a lawsuit was filed challenging the adequacy of the final EIR. The courts ultimately decided that the EIR was sufficient in all respects with the exception of the discussion of long-term water sources. The developer then prepared a Water Resources Plan which sets forth eight (8) possible sources of water for the Diablo Grande project. A Supplemental EIR was prepared based on this Water Resources Plan. The Diablo Grande Specific Plan, original EIR and Supplemental EIR were all readopted in 2006 to comply with the findings of the District Court and the Order of the Superior Court, and to update the Plan to current (2006) conditions.

Certain changes were incorporated into the revised plan adopted in 2006. The main changes to the Specific Plan from the 1993 adopted Plan are:

- Lakeborough has been omitted from all of the discussions;
- The water discussion has been revised so that it is consistent with the Supplemental EIR;
- The onsite road standards have been revised consistent with discussions with the County Department of Public Works;
- Numerous revisions have been made to clarify timeframes, dates and improvements consistent with the current setting in 1998; and
- Methods of implementing the Specific Plan have been revised to make them more understandable and clear.

The revised Plan would accommodate as many as 5,000 dwelling units in addition to two golf courses, a shopping center, resort center, vineyards, and open space areas.

Cumulative Impacts

Consistency with Regional Population Forecasts

Impact 5.2-3 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development will exceed the population and employment projections used for planning purposes by regional planning agencies that include the Stanislaus Council of Governments. This impact is considered cumulatively considerable.

Population growth projections for the region are provided in Table 5.2-20. As shown in Table 5.2-20 the regional population is expected to be about 2.5 million in 20 years, and about 3.6 million in 40 years, which is the furthest into the future the projections extend, and accommodates buildout.

As shown in table 5.2-14 under impact 5.2-1, each of the Equal-Weight Alternatives will accommodate a growth in population by 2030 that will exceed the most recent projection for Patterson for the year 2030 adopted by StanCOG for use in the Regional Transportation Plan. When the additional population accommodated by each Equal-Weight Alternative is added to the projected 2030 population for the County, it would raise the projected County population from 1% - 3% above the most recent 2030 projection as shown on Table 5.2-21.

Table 5.2-20: Cumulative Regional Population By County			
County	2030 Population	2030 Employment	2050 Population ⁴
San Joaquin County	1,069,084 ¹	288,737 ¹	1,783,973
Stanislaus County	791,332 ²	254,018 ²	1,191,344
Merced County	417,200 ³	137,200 ³	652,355
Total:	2,502,996	679,955	3,627,672
Sources: 1. San Joaquin Council of Governments, 2007 Regional Transportation Plan 2. Stanislaus Council of Governments, December 2009 3. Mat Fell, Senior Planner, Merced County Association of Governments, January 2010 4. California Department of Finance, July 2007			

**Table 5.2-21: Potential Increase In Projected 2030
County Population
With Each Equal-Weight Alternative**

Source	Compact Development	Jobs Emphasis	PC Env Review Plan
2030 Population	46,360	47,831	64,389
StanCOG 2030 Projection for Patterson	39,067	39,067	39,067
Difference	+7,293	+8,764	+25,322
2030 StanCOG ¹ County Population Projection	791,332	791,332	791,332
Total:	798,625	800,096	816,654
Percent Increase Over StanCOG 2030 Projection	+0.91	+1.10	+3.10
Notes:			
1. Stanislaus Council of Governments, December 2009			

As shown in Table 5.2-21, the increased population associated with each of the Equal-Weight Alternatives will result in a 2030 population that exceeds the 2030 population for the County adopted by StanCOG.

Buildout of the any of the Equal-Weight Alternatives, together with regional development will increase housing and employment beyond the projections identified for year 2030. As discussed previously, none of the Equal-Weight Alternatives is expected to reach its full development potential by 2030. Nonetheless, the projected population and employment accommodated by each alternative will contribute to a population and employment increase in the region that is cumulatively considerable.

Table 5.2-22 provides a summary of regional jobs and housing associated with each Equal-Weight Alternative when added to other regional development. It should be noted that Table 5.2-22 assumes all of the housing and jobs associated with each development are realized in the timeframe indicated. Market forces, regulatory constraints, and other factors may either impede or accelerate buildout of any or all of the projects listed, as well as the Equal-Weight Alternatives.

As Table 5.2-22 shows, if each project is developed within the timeframe indicated there will be a higher number of jobs than dwelling units in the region which in turn could increase the demand for housing locally. This impact is considered **cumulatively considerable and significant and unavoidable**.

Table 5.2-22: Cumulative Jobs and Housing With Each Alternative

Topic	Compact Development Alternative		Jobs Emphasis Alternative		PC Env. Review Alternative	
	Total in 20 Years	Total in 40 Years	Total in 20 Years	Total in 40 Years	Total in 20 Years	Total in 40 Years
Dwelling Units	15,153	18,992	15,711	22,151	21,687	25,589
Diablo Grande	5,000	0	5,000	0	5,000	0
Westpark	0	0	0	0	0	0
Sub-total:	25,153	18,992	25,711	22,151	26,687	25,589
Employment	21,491	25,374	26,601	28,884	25,744	28,826
Diablo Grande	980	0	980	0	980	0
Westpark	25,000	12,000	25,000	12,000	25,000	12,000
Sub-Total:	47,471	37,374	52,581	40,884	51,724	40,826
Cumulative Ratio of Employment to housing	1.88	1.96	2.04	1.84	1.93	1.59
Sources: Diablo Grande Specific Plan, 2006 Stanislaus County Addendum to the Notice of Preparation for a Draft Environmental Impact Report for the West Park Specific Plan Project, June 25, 2008						

Draft General Plan Policy Response

The draft policies listed above for Project Impacts will help mitigate regional impacts relating to population and housing. However, population and employment projections will exceed those adopted by regional planning agencies. For this reason, this impact will remain **cumulatively considerable and significant and unavoidable**.

References

Central Valley Association of Realtors <http://www.cvar.org/>

City of Patterson

City of Patterson, 1992 General Plan Policy Document and Land Use Diagram

CMCA 2009 Draft Policy Document and Land Use Alternatives

CMCA, 2007 General Plan Background Report

Diablo Grande Specific Plan, 2006

San Joaquin Council of Governments, 2007 Regional Transportation Plan

State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009;

State of California, Employment Development Department, 2009

Stanislaus Association of Governments Population and Employment Projections, December, 2009

Stanislaus County Addendum to the Notice of Preparation for a Draft Environmental Impact Report for the West Park Specific Plan Project, June 25, 2008

US Census 1980

US Census 1990

US Census 2000

US Census 2000 American Community Survey, 2001-2007

West Park Specific Plan Project, June 25, 2008

Persons Consulted

Mat Fell, Senior Planner, Merced County Association of Governments

5.3 PUBLIC SERVICES AND UTILITIES

Introduction

This section describes the existing public facilities and services in the City of Patterson and the Study Area and assesses the impacts associated with buildout of the Equal-Weight General Plan alternatives. The analysis addresses citywide and regional impacts to these facilities and services and identifies mitigation measures to lessen those impacts. The following discussion has been broken into subsections associated with the public service/utility services provided by the City and other agencies as follows:

- Fire protection
- Law enforcement
- Parks and recreation
- Public schools
- Health care
- Solid waste disposal
- Libraries
- Electricity and Natural Gas

Impacts related to water supply and wastewater collection, treatment and disposal are addressed in Sections 5.4 – Water Supply, and 5.5 – Wastewater, of this EIR, respectively. Impacts related to hazards associated with wildland fires and emergency access as it may be interrupted by rail activity are addressed in section 5.12 – Hazards and Hazardous Materials.

Public facilities in Patterson are shown on Figure 5.3-1 and listed on Table 5.3-1. These facilities include public parks, schools, drainage facilities, and other City-owned properties such as City Hall, the police and fire stations and corporation yard.

Figure 5.3-1: Existing Public Facilities (See Table 5.3-1)

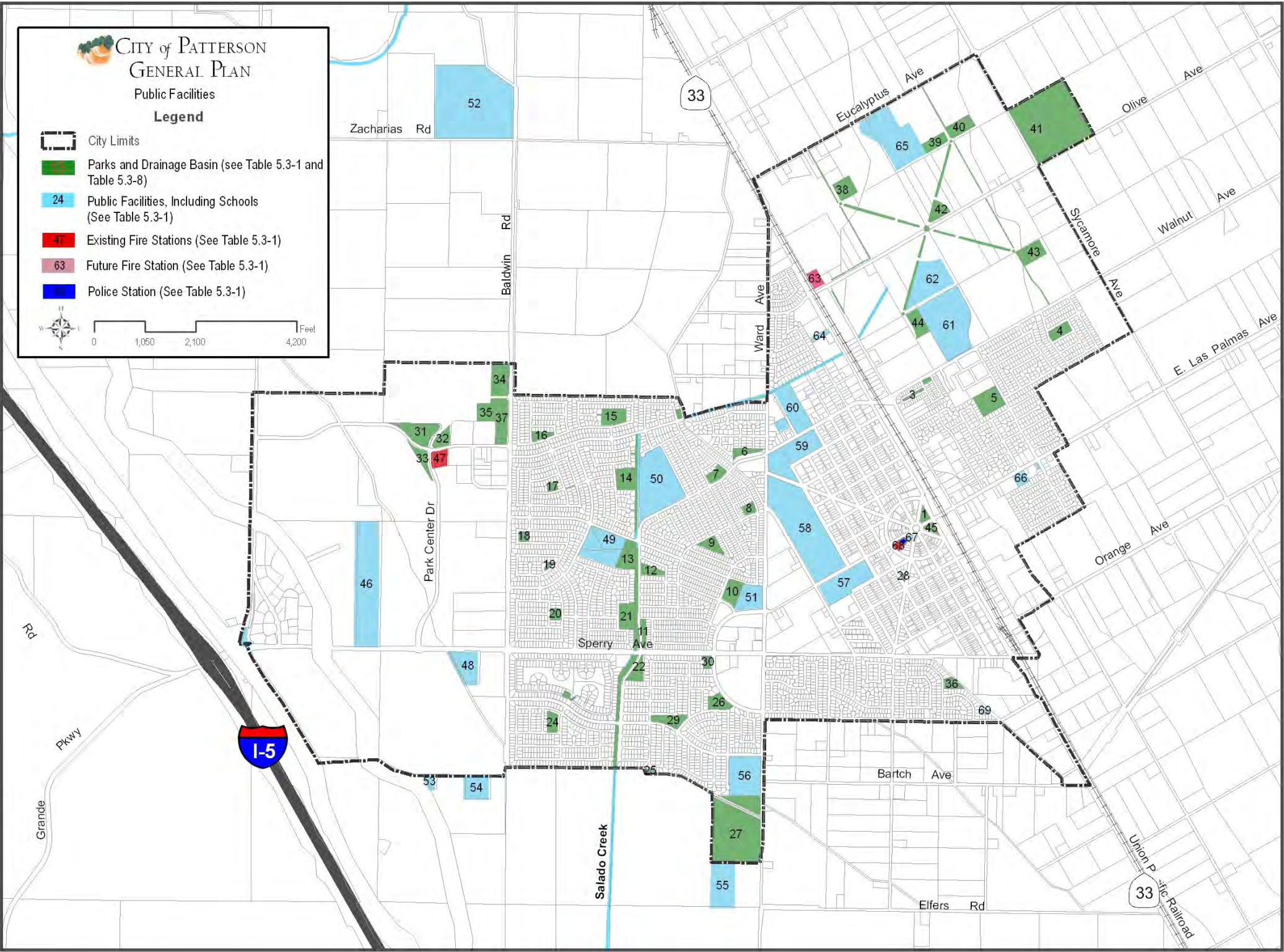


Table 5.3-1: Public Facilities In Patterson
(See Figure 5.3-1)

Number	Name	Number	Name
1	North Park	36	Sunflower Park
2	Memorial Park	37	Keystone Drainage basin
3	Noble Park	38	Undeveloped Park – Villages of Patterson
4	Wilding Park	39	Undeveloped Park – Villages of Patterson
5	Felipe Garza Park	40	Undeveloped Park – Villages of Patterson
6	Sorensen Park	41	Undeveloped Park – Villages of Patterson
7	Newcastle Park	42	Undeveloped Park – Villages of Patterson
8	Golden Amber Park	43	Undeveloped Park – Villages of Patterson
9	Autumn Royal Park	44	Undeveloped Park – Villages of Patterson
10	Tilton Park	45	South Park
11	Blenheim Park	46	Patterson Airport
12	Sun Glow Park	47	Fire Station No. 2
13	Floragold Park	48	CDF Fire Station
14	Ambercot Park	49	Apricot Valley Elementary School
15	Goldbar Park	50	Creekside Middle School
16	Sungiant Park	51	Patterson Community Center/Senior Center and Aquatics Center
17	Tri Gem park	52	Future High School
18	Rosette Park	53	Water Tank
19	Castlebrite Park	54	City Corporation Yard
20	Early Gold Park	55	Future Community College
21	Aprigold Park	56	Future Elementary School
22	Camas Lily Park	57	Las Palmas Elementary School
23	No Name	58	Patterson High School
24	Woodland Star Park	59	Northmead School
25	Blue Fiesta Park	60	Sacred Heart Catholic School
26	Meadow Rue Park	61	Elementary School
27	Sports Complex	62	Future School
28	Del Puerto Park	63	Future Fire Station
29	Mustang Clover Park	64	Drainage Basin
30	Valley Lupine Park	65	Future Elementary School
31	Keystone Drainage Basin	66	Drainage basin
32	Keystone Drainage Basin	67	City Hall
33	Keystone Drainage Basin	68	Fire Station No. 1
34	Keystone Drainage Basin	69	Drainage Basin
35	Keystone Drainage Basin		

Fire Protection

Setting

The Patterson Fire Department and the West Stanislaus Fire District (WSFD) provide fire protection within the City's General Plan Study Area. The Patterson Fire Department and WSFD share a full-time fire chief and a fire station in Patterson. For administrative purposes they operate as separate entities. The Patterson Fire Department provides fire protection to all lands within the city limits.

The Patterson Fire Department is staffed by 15 fulltime staff and 28 volunteers. Typically, two personnel are on duty at each station at any given time (Bill Kinnear, Fire Chief, March 2010). Volunteers are called from the area where the call originates.

The Patterson Fire Department and the WSFD have mutual aid agreements with all adjoining fire districts. In addition, the California Division of Forestry operates a fire station on Sperry Avenue east of Interstate 5.

The City operates two fire stations. The main station is located at 433 West Las Palmas Avenue but does not have adequate space for administration, equipment, equipment maintenance, storage, or adequate parking. A second fire station was recently completed within the Keystone Business Park at the southeast corner of Keystone Pacific Parkway and Park Center Drive. The Villages of Patterson project, which was approved in 2006 and subject to separate environmental review¹, has dedicated a building site as well as \$3 million toward the cost of constructing a third fire station on the east side of the City. In addition, the developers have agreed to impose a fee on each dwelling of \$270 to help fund the necessary staffing of the station. Together, the contribution of the project will provide adequate fire protection services for the Study Area and will help fund fire protection for the east side of the City.

The fire department's equipment includes three engines and one rescue vehicle (owned jointly by the City and the WSFD). Equipment owned by the WSFD includes nine engines (two reserves), five water tankers, three rescue vehicles (one reserve, one each owned jointly with the Cities of Patterson and Newman), one mobile air compressor, a large mobile generator, and a pickup truck.

The fire department's average response time varies, depending on the area. At present, 95% of calls are responded to within eight minutes (Kinnear, March 2010). The fire department's goal is to ensure that 95% of all calls are responded to within five minutes.

Fire protection classifications are designated by the Insurance Services Office (ISO). The ISO considers three primary factors in their rating system: fire department location, personnel, and equipment (50 percent); water supply and fire flow capacity (40 percent); and communications capabilities (10 percent). Ratings are based on a scale of 1 to 10, with 1 being the best possible protection. The Patterson Fire Department maintains an ISO rating of six within the city, and a rating of four in areas with hydrants (Kinnear, March 2010). Outside the City within the Study Area, the ISO rating is about nine.

In addition to fire suppression, the fire department's services include fire prevention, public education, fire hydrant maintenance, hazardous materials response, and nuisance abatement.

In 2000 the City prepared an updated capital improvement program and associated development impact fees study for public safety. These fees were subsequently updated in 2006 and identified a number of

¹ Turnstone Consulting, Final Environmental Impact Report for The Villages of Patterson Project, August 2006

facilities and other equipment necessary to maintain acceptable fire safety standards through buildout of the 1992 General Plan. The recommended fire protection facilities and corresponding costs are listed in Table 5.3-2.

Table 5.3-2: Fire Protection Facility Needs for Buildout of the 1992 General Plan			
Item/Facility	Quantity	Quantity Cost	Total
Station 3 Land	1.5 acres	\$150,000/ acre	\$225,000
Building	1	\$2,700,000/building	\$2,700,000
Fire Engines	2	\$682,799	\$1,365,598
Command Vehicles	2	\$40,840	\$81,680
Sub-Total:			\$6,122,278
Aerial Ladder	1	\$1,021,000	\$1,021,000
Building for Aerial Ladder	1	\$265,460	\$265,460
Sub-Total:			\$1,286,460
Station 1 Building Remodel			\$1,750,000
TOTAL:			\$7,408,738
Source: City of Patterson Capital Improvement Program, 2006			

Table 5.3-2 shows that an additional fire station and specialized fire protection equipment will be necessary to accommodate buildout of the City's 1992 General Plan. The 1992 General Plan establishes a goal of achieving a ratio of personnel to residents of 1 firefighter per 1,000 residents. Using this standard, 21 firefighters are needed to meet this goal. The current staff appears to be adequate from this perspective.

Potential fire hazards associated within the City include the following:

- The use, storage and transport of flammable materials associated with residences, commercial businesses, industrial sites and public facilities;
- Gasoline stations and bulk petroleum storage facilities;
- Building materials associated with structures, including dwellings, retail and office buildings, industrial buildings and public facilities;
- Landscaping, street trees and weeds;
- Underground gas and petroleum lines and above-ground electrical facilities;

Regulatory Setting

State Regulations

California Occupational Safety and Health Administration

In accordance with California Code of Regulations 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

hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance and use of all firefighting and emergency medical equipment.

Emergency Response/Evacuation Plans

State law authorizes the Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Noncompliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster. The preservation of life, property, and the environment is an inherent responsibility of local, state, and federal government. OES coordinates the responses of other agencies including the California Highway Patrol (CHP) and the City of Patterson Police and Fire departments.

Fire Hazard Severity

California has enacted statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. These regulations cover topics such as fire prevention, vegetation management, notification and penalties, fire hazard severity zones, defensible space, setbacks, and exemptions. For the complete text of the Fire Hazard Zoning Field Guide, the reader is referred to the Office of the State Fire Marshal's fire safety planning website (<http://osfm.fire.ca.gov/zoning.html>).

California Public Resources Code/Vegetation Management Program

CalFire has a fuel reduction program called the Vegetation Management Program. Limited funding is available to conduct fuel management activities primarily by burning on parcels or aggregates of parcels of 100 acres or more. The objective of the Vegetation Management Program is to prevent high-intensity wildfire through fuel modification. If brush can be kept at the medium fuel load level, then the intensity of fire can be reduced substantially.

California Fire Plan

The California Board of Forestry and CalFire have developed the California Fire Plan in an effort to reduce the overall costs and losses from wildfire in California. According to the California Fire Plan, the primary purpose of wildland fire protection in California is to protect human health and safety together with the wide range of assets found on California wildlands. These assets include timber, range, recreation, water and watersheds, plants, air quality, cultural and historic resources, unique scenic areas, buildings, and wildlife, plants, and ecosystem health. The California Fire Plan defines a standard for measuring the level of fire protection service provided in an area, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis. A key product of the California Fire Plan is the development of wildfire safety zones to reduce the risks to residents and firefighters from future large wildfires. The California Fire Plan defines an assessment process for measuring the level of service provided by the fire protection system for wildland fire. This measure can be used to assess the department's ability to provide an equal level of protection to sites with similar land types, as required by Public Resources Code Section 4130. This measure is the percentage of fires that are successfully controlled before unacceptable costs are incurred. Knowledge of level of service will help define the risk to wildfire damage faced by public and private assets in wildlands.

Local Regulations

City of Patterson Fire Code

Local fire protection regulations are provided in Title 6 of the Patterson Municipal Code.

Standards of Significance

State CEQA Guidelines Appendix G states that a significant impact to fire protection and emergency services would occur if implementation of the proposed project:

1. Would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

The 1992 general Plan establishes the following targets for the ratio of firefighting personnel to population and for response times.

- 1 firefighter per 1,000 population
- 95% of all emergency service response calls within the City must be responded to within 5 minutes.

Based on this standard, a significant adverse impact would occur if the construction of firefighting facilities necessary to achieve and maintain these objectives through buildout of the Equal-Weight Alternatives were to result in significant physical impacts to the environment.

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential fire service impacts was based on consultation with staff from the Patterson Fire Department, as well other relevant literature regarding appropriate metrics for fire and safety response.

Response Times and Staffing

Impact 5.3-1 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would increase the City's population, the number of structures, and the geographic area served by the Fire Department. As the geographic area and population served by the Fire Department expands, the desired response times may not be achieved without additional fire stations and fire fighting personnel. This is considered a potentially significant impact.

Development accommodated by the Equal-Weight Alternatives would increase the population of the City as well as the number of structures and the geographic area served by the Fire Department. Depending on the Equal-Weight Alternative and timeframe chosen, buildout populations could range from about 46,000 to over 75,000 between 20 and 40 years (buildout) within a geographic area that ranges from 7,664 acres to 12,466 acres. The City's staffing objective, as stated in the Draft Policy Document under policy PS-6.4, is to maintain a ratio of 1 firefighter per 1,000 population, which would require staffing (at buildout) ranging from 46 to 75. Current staffing is 43. Thus, long-term development could result in inadequate staffing to meet the City's desired ratio of firefighters to population. The personnel-related impacts of each Equal-Weight Alternative are shown in Tables 5.3-3 and 5.3-4, for both the 20-year and 40-year growth boundaries.

Table 5.3-3: Fire Department Personnel Needed to Serve The 20-Year Growth Boundary			
Alternative	20 Year Population	Total Staffing Needed To Serve 20-Year Population ¹	Additional Staffing Required ²
Compact Development	46,360	47	4
Jobs Emphasis	47,831	48	5
Planning Commission EIR	64,389	65	22
Notes			
1. Based on standard of 1 firefighter per 1,000 population 2. Based on the current (2010) staffing of 43 personnel			

Table 5.3-4: Fire Department Personnel Needs at 40-Year Buildout			
Alternative	40 Year Buildout Population	Total Staffing Needed To Serve 40 Year Population ¹	Additional Staffing Required ²
Compact Development	57,510	58	15
Jobs Emphasis	66,673	67	24
Planning Commission EIR	75,863	76	33
Notes			
1. Based on standard of 1 firefighter per 1,000 population 2. Based on the current (2010) staffing of 43 personnel			

Note that in all cases additional firefighters would be needed to maintain the desired ratio of personnel to population. However, current staffing (43) is sufficient to serve a population of about 43,000 residents while maintaining the desired ratio of firefighters to population. Since the City's 2009 population is about 21,000 the current level of staffing will likely be adequate for several years. Nonetheless, unless staffing is added concurrently or in advance of future population growth, a staffing shortfall could occur at some point in the future from population accommodated by each of the Equal-Weight Alternatives.

Each of the Equal-Weight Alternatives designates additional land for urban development surrounding the existing service area of the Fire Department. Expansion of the geographic service area will in turn increase response times unless additional fire stations are built in areas not adequately served by existing facilities. At present (2010), 95% of all Fire Department responses are under 8 minutes; the City's 1992 General Plan sets a goal of achieving 95% of all responses under 5 minutes. Expanding the service area of the Fire Department as would occur under any of the Equal-Weight Alternatives will worsen this response time to areas furthest from existing fire stations. This impact is considered **potentially significant**.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for fire protection services:

Policies

- PS-6.1 Fire response time.** The City shall endeavor to achieve and maintain an overall fire insurance (ISO) rating of 5 or better. The goal for average response time for Priority 1 (emergency) calls shall be five minutes for 95 percent of the calls.
- PS-6.2 Location of stations.** Fire stations shall be strategically located to ensure optimal response time. The existence of physical barriers such as railroad tracks shall be an important siting consideration.
- PS-6.3 Fire Code requirements.** The City shall continue to apply the California Fire Code requirements for built-in fire suppression equipment in all new development.
- PS-6.4 Ratio of fire fighters to population.** The City shall endeavor to achieve and maintain a ratio of 1.0 fire fighters per 1,000 population.

Implementation Measures

- PS-9** The City shall periodically update its long-term Capital Improvements Programs (CIPs), including sewer, water, drainage, police and fire protection, and other facility improvements.
- PS-11** The City shall establish and collect development impact fees as needed for public services in accordance with Government Code §66000, et seq.
- PS-13** The City shall, in cooperation with West Stanislaus Fire Protection District, prepare and adopt a Master Plan for the provision of fire protection services. The Master shall address, among other things:
- The roles of the City and District in the provision of fire protection services for the City;
 - The size, number and location of fire stations to serve the City;
 - Desired fire fighting staffing and organizational structure;
 - Equipment and training;

Implementation of the recommended policies and implementation measures described above will reduce potential impacts to a **less than significant level**.

Additional Mitigation

None required.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for fire protection includes the current service area boundaries of the Patterson Fire Department, as well as the General Plan Study Area as it may be developed in accordance with the Equal-Weight alternatives for both the 20-year and 40-year growth boundaries.

Cumulative Impacts and Mitigation Measures

The discussion of project impacts under impacts 5.3-1 and 5.3-2 considers cumulative development throughout the City as contemplated by each of the Equal-Weight Alternatives. In this case cumulative impacts relating to response times and staffing is considered **less than cumulatively considerable**. Cumulative impacts associated with the construction of fire stations are considered **cumulatively considerable and significant and unavoidable**.

Law Enforcement

Setting

The City contracts with the Stanislaus County Sheriff's Department for police protection services. The Police Department (the Patterson Division of the Sheriff's Department) is located at 344 West Las Palmas Avenue and includes Administrative Offices, Investigative Bureau, Record Bureau, Volunteers in Public Service Training, Community Service Officers, Computer Information Services and a Central Dispatch Office.

The Division consists of 18 sworn officers, and 3 volunteers. There are three to six officers plus a shift supervisor on patrol at any one time. Response time is estimated to be less than 3 minutes to any part of the City. Police units are currently dispatched to City emergencies through the Stanislaus County Communications center in Modesto. This County service is provided to the City on a contract basis.

The Division will respond to requests from other agencies outside the city limits when necessary. Other agencies who may request assistance include the California Highway Patrol, Stanislaus County Sheriff, City of Modesto Police Department, and the City of Hughson Police Department.

The draft Policy Document establishes a desired ratio of 1.5 full-time law enforcement employees per 1,000 population with recommended policy PS-5.3. The current staffing of 18 officers does not meet the desired ratio. Additional officers are funded through contractual arrangements with the County or by the City providing its own staffing. In addition, the financing district established for The Villages of Patterson project will fund police protection personnel for that portion of the City only.

In 2000 the City prepared an updated capital improvement program and associated development impact fee study for public safety. The list of facilities and associated costs were updated in 2006 as part of an update of the City's development impact fees. The fee study identifies facilities and equipment that will be necessary to maintain acceptable police protection safety standards through buildout of the existing 1992 General Plan. The recommended police facilities and their corresponding costs are listed in Table 5.3-5.

Table 5.3-5. Police Protection Facility Needs To Serve Buildout of the 1992 General Plan

Item/Facility	Quantity	Cost
Building	1	\$1,351,200
Land (improved)	21,780 sq. ft.	\$217,800
Vehicles and Other Equipment		\$319,500
Office Equipment		\$326,955
TOTAL:		\$2,215,455
Source: City of Patterson, CMCA, 2006		

Table 5.3-5 shows that additional building space and vehicles will be necessary to accommodate the level of development anticipated by the 1992 General Plan. The City's development impacts fees are aimed at providing funding for the equipment and facilities as they are needed to serve new development.

Regulatory Setting

State Regulations

Emergency Response/Evacuation Plans

The State of California passed legislation authorizing the Office of Emergency Services to prepare a Standard Emergency Management System program, which sets forth measures by which a jurisdiction should handle emergency disasters. Noncompliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster.

Standards of Significance

State CEQA Guidelines Appendix G. states that a significant impact to police protection would occur if implementation of the proposed project:

1. Would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

The 1992 General Plan establishes the following targets for the ratio of law enforcement personnel to population and for response times.

- 1.5 sworn officer per 1,000 population
- Response times should be typically within 3-5 minutes.

Based on this standard, a significant adverse impact would occur if the construction of facilities necessary to achieve and maintain these objectives through buildout of the Equal-Weight Alternatives were to result in significant physical impacts to the environment.

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential police service impacts was based on consultation with staff from the Patterson Police Department, as well other relevant literature.

Response Times and Staffing

Impact 5.3-2 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would increase the City's population, employment, the number of structures, and the geographic area served by the Police Department. As the geographic area and population served by the Police Department expands, the desired response times may not be achieved without additional police stations (or substations) and law enforcement personnel. This is considered a potentially significant impact.

As discussed above, current staffing of the Police Department does not meet the desired ratio of police officers to population prescribed by the 1992 General Plan. To achieve the desired ratio of 1.5 officers per 1,000 would require a total of 32 officers to serve a population of 21,000; at present (2010) there are 18 sworn officers and 3 volunteers. Response times are currently considered acceptable, typically less than three minutes according to the Police Chief.

In the absence of a concurrent increase in law enforcement staffing, the increase in population associated with any of the Equal-Weight Alternatives will result in the ratio of law enforcement personnel to population to decrease as summarized for each alternative in Tables 5.3-6 and 5.3-7.

Table 5.3-6: Law Enforcement Staffing Needs for the 20-Year Growth Boundary			
Alternative	20 Year Population	Total Staffing Required ¹	Additional Staffing Required ²
Compact Development	46,360	70	49
Jobs Emphasis	47,831	72	51
Planning Commission EIR	64,389	97	76
Notes			
1. Based on standard of 1.5 officer per 1,000 population			
2. Based on the current (2010) staffing of 21 personnel			

Table 5.3-7: Law Enforcement Staffing Needs for the 40-Year Buildout			
Alternative	40 year buildout Population	Total Staffing Required ¹	Additional Staffing Required ²
Existing GP	33,196	50	29
Compact Development	57,510	86	65
Jobs Emphasis	66,673	100	79
Planning Commission EIR	75,863	114	93
Notes:			
1. Based on standard of 1.5 officer per 1,000 population			
2. Based on the current (2010) staffing of 21 personnel			

Note that in all cases, law enforcement personnel would be needed to maintain the desired ratio of personnel to population established by the 1992 General Plan.

Each of the Equal-Weight Alternatives would result in an expansion of the area served by the Police Department, which would result in increased response times, unless additional police stations (or sub-stations) were built in areas not adequately served by existing facilities. At this time, response times are reported to be within a 3-5 minute range, consistent with the proposed City standard.

Future development will likely increase response times somewhat, since a higher population will likely generate more calls, and because of the potential geographic expansion of the City. This impact is considered **potentially significant**.

Compact Development Alternative

Under this alternative, the service area for the police department would extend roughly 4.5 miles from the existing police station on Del Puerto Avenue. It would therefore be difficult to respond to service calls in the northwestern part of the City within the 3-5 minute response time that the department seeks to maintain. Based on the fact that the current extent of the service area is about 2.3 miles from the police station, it may be surmised that response times would exceed the 3 – 5 minute desired timeframe to areas north and west of the Patterson Business Park.

Jobs Emphasis Alternative

Under the Jobs Emphasis Alternative the service area for the police department would extend about 5.1 miles from the police station on the north side of Zacharias Road. It would therefore be difficult to respond to service calls in the northern and northwestern part of the City within the 3-5 minute response time that the department seeks to maintain.

Expansion to northeast would place the farthest extent of the City about 3 miles from the police station in that direction, which would likely be serviceable within the exiting 3-5 minute response time, presuming that needed traffic improvements are made to serve future development. To the south, the City would extend about 2 miles from the police station, which could be served within the desired response times of 3-5 minutes.

Planning Commission Environmental Review Alternative

This alternative is similar to the Jobs Emphasis Alternative, with a slightly greater geographic extent to the north and east. The City limits would extend to the west roughly 4.5 miles from the police station. It would therefore be difficult to respond to service calls in the northwestern part of the City within the 3-5 minute response time that the department seeks to maintain.

The future expansion to northeast would place the farthest extent of the City about 3.2 miles from the police station in that direction (near Elm and Lemon Avenue), which would likely be serviceable within the existing 3-5 minute response time, presuming that needed traffic improvements (if any) are made to serve future development. The extent of the City to the south would be about 2 miles from the police station, which could be served within existing response times of 3-5 minutes.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for law enforcement services:

Policies

- PS-5.1 Police response time.** The City shall, through adequate staffing and patrol arrangements, and through the establishment of police stations/patrol offices, endeavor to maintain the minimum feasible response times for police calls for all parts of the City. The goal for average response time for Priority 1 (emergency) calls shall be three minutes.
- PS-5.2 Response time monitoring.** The Police Services Department shall continually monitor response times and report annually on the results of the monitoring.
- PS-5.3 Ratio of police officers to population.** The City shall endeavor to achieve and maintain a ratio of 1.5 police officers per 1,000 population.
- PS-5.4 Agency cooperation.** The City will continue to work with other agencies to facilitate the most cost-effective provision of law enforcement and social services for Patterson residents.

Implementation Measures

- PS-9** The City shall periodically update its long-term Capital Improvements Programs (CIPs), including sewer, water, drainage, police and fire protection, and other facility improvements.
- PS-11** The City establish and collect development impact fees as needed for public services in accordance with Government Code §66000, et seq.
- PS-12** The City shall, in cooperation with Stanislaus County, prepare and adopt a Master Plan for the provision of police services. The Master shall address, among other things:
- The roles of the City and County in the provision of law enforcement services for the City;
 - The size, number and location of police satellite/patrol offices to serve the City;

- Desired police staffing and organizational structure;
- Equipment and training;

The policies and implementation measures listed above apply to each Equal-Weight alternative and will help minimize impacts relating to law enforcement services. The City would monitor response times and would ensure that adequate service is provided.

With implementation of proposed policies and mitigation measures, impacts relating to staffing and response times would be **less than significant**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for law enforcement includes the current service area of the Patterson Police Department, as well as areas designated for urban development by each of the Equal-Weight alternatives for both the 20-year and 40-year growth boundaries.

Cumulative Impacts and Mitigation Measures

The discussion of project impacts under impacts 5.3-3 and 5.3-4 considers cumulative development throughout the City as contemplated by each of the Equal-Weight Alternatives. In this case cumulative impacts relating to response times and staffing is considered **less than cumulatively considerable**. Cumulative impacts associated with the construction of law enforcement facilities is considered **cumulatively considerable and significant and unavoidable** (See Impact 5..

Parks and Recreation

Setting

Parks

Parks in Patterson are operated and maintained by the City. Existing parks are summarized on Table 5.3-8 and shown on Figure 5.3-1. As shown on Table 5.3-8, the City has developed an extensive park system with a range of park facilities to serve active recreation and organized sports, as well as to provide open space and recreation amenities within residential neighborhoods. Existing park facilities include:

- Patterson Sports Complex is located south of the City at the southwest corner of Ward Avenue and Ranch Road and consists of 25 acres developed with ball fields, a children's play area, and parking.
- North and South City Parks at Las Palmas and Highway 33 make up a combined three acres. These are the oldest parks in Patterson, established when the town was originally laid out. The parks have playground equipment, and are heavily used on holidays and weekends.
- Felipe Garza Park is a five-acre park at Walnut and Las Palmas Avenues. Facilities at the park include playground equipment, a baseball diamond, and an open grassy area.
- Several neighborhood parks located within the Patterson Gardens, Creekside, Patterson Ranch, and Walker Ranch projects.

City residents also use schools to supplement City park facilities. School grounds are open to the public after school and during the summer, and include the following:

- Northmead School is on a 7-acre site and is located at M and Fifth Streets. Facilities include a playground and an open grassy area. Roughly half of the 7 acres is designed for outdoor recreational purposes.
- Las Palmas School is on an 11-acre site located at 624 W. Las Palmas Avenue. The school grounds contain large open grassy areas suitable for field activities. About two-thirds of the site are available for outdoor recreational uses.
- Patterson High School and Junior High School share a 37-acre site at 200 N. 7th Street. Facilities include athletic fields, tennis courts, and a gymnasium. Little League baseball games are held at the high school. About half of the site is given to outdoor recreational uses.

In all, these school sites provide about 30 acres of informal recreational areas, which are not included in the City's 109.37-acre total shown in Table 5.3-8.

The 1992 General Plan designates about 200 total net acres as Parks/Open Space. This acreage excludes school properties which are also used by City residents for recreation. Of the 200 total acres designated as Parks/Open Space, 109.37 acres are developed with a combination of parks and storm drainage detention basins. Of the 109.37 developed acres, 76.8 acres are developed as parks, while the remaining 32.5 acres are developed as drainage basins. Although land devoted to drainage basins may be used for some forms of outdoor recreation, this acreage is not counted toward the City's acreage of developed park land.

The draft Policy Document establishes a goal of 5 acres of developed parkland per 1,000 residents (policy PS-1.2). Section 66700 (A) of the Subdivision Map Act (the Quimby Act) states:

(A) The park area per 1,000 members of the population of the city, county, or local public agency shall be derived from the ratio that the amount of neighborhood and community park acreage bears to the total population of the city, county, or local public agency as shown in the most recent available federal census. The amount of neighborhood and community park acreage shall be the actual acreage of existing neighborhood and community parks of the city, county, or local public agency as shown on its records, plans, recreational element, maps, or reports as of the date of the most recent available federal census.

The most recent available census is from 2000 when the City's population was 11,606 and the amount of developed parkland within the City was 22.1 acres, which result in a ratio of 1.9 acres of developed parkland per 1,000 residents. As discussed above, in 2010 the total acreage of developed parkland in the City is about 76.83 acres, making the ratio of developed parkland about 3.6 acres per thousand residents, which is below the current General Plan standard.

There remains a significant amount of undeveloped land designated for parks under the current General Plan. Most of the remaining undeveloped parkland lies within The Villages of Patterson project approved in 2006. The Villages project would provide about 66 acres of new parks, including a 40-acre soccer field complex at the northeast corner of Sycamore Avenue and Olive Avenue. Development of the remaining 90 acres of undeveloped park acreage in the same proportion as existing parks (about 77% for park facilities and about 33% for drainage facilities), would result in an additional 70 acres of developed parkland.

Excluding school property, Patterson has a ratio of approximately 3.6 acres of existing developed parkland per 1,000 residents. State law (California Government Code 66477 et seq.) allows local governments to require new development to provide through dedication of land or payment of an in lieu fee, the equivalent 3.0 acres per 1,000 residents unless the existing ratio of park acreage to population exceeds that limit. In such a case local governments may require up to the existing standard, but not to exceed 5.0 acres per 1,000 residents.

Park facilities are listed in Table 5.3-8.

Table 5.3-8: Existing Park Facilities

Name	Location	Amenities	Acres
Developed Parkland			
North Park	Las Palmas Ave and 2 nd Street	Picnic table, playground	0.98
Memorial Park	Las Palmas Ave and Walnut Ave	Benches, horseshoe	0.99
Noble Park	Noble Park and Bennett Drive	Tot lot	0.52
Wilding Park	Ashwood and Oakwood Lane	Basketball court, playground, picnic table	2.47
Felipe Garza Park	Hartley Street	Baseball diamond, playground	2.84
Sorensen Park	"M" Street	Playground	1.83
Newcastle Park	American Eagle Ave and Red Robin Drive	Playground, gazebo, benches	2.08
Golden Amber Park	Heartland Ranch Ave and Red Robin Drive	Playground	1.29
Autumn Royal Park	Heartland Ranch Ave and Red Robin Drive	Tot lot, picnic table	2.40
Tilton Park	James Burke Ave and Kestrel Drive	Playground, tot lot, picnic table	3.50
Blenheim Park	American Eagle Ave and Pipit Drive	Tot lot, gazebo	1.25
Sun Glow Park	American Eagle Ave and Kestrel Drive	Tot lot	1.94
Floragold Park	Shearwater Drive and American Eagle Ave	Playground	3.22
Ambercot Park	Creekside Drive and Alpine Creek Drive	Playground, gazebo, picnic tables	4.07
Goldbar Park	Samantha Creek Drive and Gold Creek Drive	Rock climbing, swings, gazebo, picnic table	3.80
Sungiant Park	Samantha Creek Drive and Snow Creek Drive	Basketball court, picnic tables	1.50
Tri Gem park	Steel Creek Drive and Snow Creek Drive	Basketball court, playground, gazebo	0.82
Rosette Park	Mendocino Creek Drive and Amador Creek Drive	Rock climbing, swings, gazebo, basketball court	1.04
Castlebrite Park	Toggenburg Street and Damara Court	Tot lot, picnic tables	0.53
Early Gold Park	Jersey Lane and Brangus Street	Basketball court, tot lot, playground, gazebo	1.26
Aprigold Park	Hackney Street	Playground, picnic tables, gazebo, tot lot, baseball diamond	3.89
Camas Lily Park	American Eagle Ave and Sperry Ave	Soccer field, benches, basin	2.55
No Name	Horizon Lane	Tot lot	0.69
Woodland Star Park	Azalea Drive and Scarlet Lane	Playground, rock climbing, gazebo	2.19
Blue Fiesta Park	Bella Flora Lane and Sweet Briar Drive	Water feature, gazebo	0.50
Meadow Rue Park	Tissot Drive and Garden Patch Way	Exercise equipment, baseball diamond, gazebo	2.85
Sports Complex	Ward Avenue	Baseball diamond, soccer field, playground, gazebo, picnic tables	25.52
Del Puerto Park	Del Puerto Ave and 5 th Street	Bench	0.31
Subtotal			76.83
Other Facilities Used for Recreation (Including Drainage Basins)			
No Name	Logan Way and Walnut Ave	Basin	0.37
Aurora Park	Roadrunner Drive and Cliff Swallow	Basin	0.55
Mustang Clover Park	Calvinson Parkway and Bella Flora Lane	Volleyball court, basin	3.27
Valley Lupine Park	Sperry Ave and Las Palmas Ave	Basin	0.90

Table 5.3-8: Existing Park Facilities			
Name	Location	Amenities	Acres
No Name	Baldwin Road and Keystone Pacific Parkway	Pond/basin	9.09
No Name	Baldwin Road and Keystone Pacific Parkway	Basin	5.61
No Name	Keystone Pacific Parkway and Pacific Center Drive	Basin	2.30
No Name	Keystone Pacific Parkway and Pacific Center Drive	Basin	6.38
No Name	Keystone Pacific Parkway and Pacific Center Drive	Basin	2.44
Sunflower Park	Sunflower Drive	Basketball court, basin	1.63
Subtotal :			32.54
TOTAL:			109.37
Source: City of Patterson Department of Parks and Recreation, 2010			

Table 5.3-9 provides a summary of park and recreation acreage, and includes school facilities.

Table 5.3-9: Summary of Park Acreage In Patterson	
Facilities	Acres
Developed Parkland ¹	76.8
Other Facilities Used for Recreation	32.5
Undeveloped Land Dedicated for Park Use	90.0
TOTAL Existing and Planned City Facilities	199.3
School Facilities ²	about 30
TOTAL All Existing and Planned Facilities	about 230
Notes: 1. Net developed acres (see Table 5.3-7) 2. Estimated	

Parkland Acquisition

The City requires new development to dedicate its fair share of parkland, or to pay an in lieu fee as allowed by State law. The City also collects development impact fees from new development to develop park facilities. The City also uses a combination of impact fees and improvements negotiated through development agreements to construct other recreational facilities, which in the past has included a community center, senior center and aquatics center.

The Quimby Act (discussed below) provides a mechanism for the acquisition of parkland by local governments as a condition of subdivision approval. These fees may be used to develop new park facilities or to replace facilities at existing parks. The City's Park, Recreation and Other Facilities fee includes cost components for general park improvements as well as fees to fund the second phase of the TW Patterson community sports complex.

Recreation

The City's Recreation Department offers a number of recreational classes and activities at a nominal fee to cover costs. Such classes and activities include: youth soccer and baseball, volleyball, dance classes, swim lessons, gymnastics, yoga, karate, preschool story time, and a variety of other activities open to the public.

Regulatory Setting

State Regulations

The Quimby Act

Section 66700 of the Subdivision Map Act (the Quimby Act), prescribes the circumstances and procedures under which a local government may require the payment of a fee or the dedication of land for park purposes. Under the Quimby Act a local government may adopt an ordinance requiring the dedication of land, or the payment of a fee in lieu of land, as a condition of approval of a subdivision. The ordinance must include standards for determining the amount of land to be dedicated and the amount of any fee that would be paid in lieu of dedication. These standards must first be adopted as part of the City's General Plan. More specifically, the Quimby Act allows a local government to require the dedication or the payment of an equivalent in lieu fee which is necessary to provide three acres of parkland per 1,000 persons residing in a new subdivision. If the existing amount of neighborhood and community park land within the community already exceeds a ratio of three acres per 1,000 residents (in other words, the existing standard is higher) the law allows the local government to require a higher standard for the dedication or in-lieu fee, but not to exceed five acres per 1,000 persons.

Local Regulations

City of Patterson Park Design Guidelines

The City has adopted Park Design Guidelines to guide the development of parks within the City, guided by policies and programs provided in the 1992 General Plan Parks and Recreation Element.

Standards of Significance

State CEQA Guidelines Appendix G. states that a significant impact to parks and recreation facilities would occur if implementation of the proposed project would:

1. Increase the demand for recreational opportunities and facilities that result in the need to construct or expand recreational facilities, which might have an adverse physical effect on the environment.

Based on the standard of 5 acres of parkland per 1,000 population, a significant impact would occur if there is insufficient acreage designated for parks to meet this standard through buildout of the Equal-Weight Alternatives.

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential parks and recreation impacts was based on consultation with staff from the Patterson Parks Department, the relevant provisions of State law, as well as other relevant literature.

Increased Demand for Developed Parkland and Recreation Facilities

Impact 5.3.-3 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will increase the City's population with a corresponding increase in the demand for parks and recreational facilities. A significant impact relating to parks could occur if developed parkland is not provided concurrently or in advance of population growth to achieve and maintain the desired ratio of 5 acres of parkland per 1,000 population. This impact is considered potentially significant.

Future development will add population to the City, which will increase the demand for parkland and recreational facilities. The specific acreage of developed parkland required for each Equal-Weight Alternative to achieve the desired ratio of parkland to population is provided in Tables 5.3-10 and 5.3-11 for both the 20-year and 40-year growth boundaries.

Table 5.3-10: Park Acreage Needed To Serve the 20-Year Population Accommodated By Each Equal-Weight Alternative			
Alternative	20 Year Population	Total Acreage Of Developed Parkland Needed To Serve The 20 Year Population ¹	Additional Acreage Of Developed Parkland Needed to Serve the 20 Year Population ²
Compact Development	46,360	232	155
Jobs Emphasis	47,831	239	162
Planning Commission Env Review	64,389	322	245
Notes 1. Based on a standard of 5 acres per 1,000 population 2. Based on the current (2010) acreage of developed parkland of 76.83 acres.			

**Table 5.3-11: Park Acreage Needed to Serve the 40-Year Buildout
Accommodated By Each Equal-Weight Alternative**

Alternative	40 year buildout Population	Total Acreage Of Developed Parkland Needed To Serve The 40 year buildout Population¹	Additional Acreage Of Developed Parkland Needed to Serve the 40 year buildout Population²
Compact Development	57,510	288	211
Jobs Emphasis	66,673	333	256
Planning Commission Env Review	75,863	379	302
Notes 1. Based on standard of 5 acres per 1,000 population 2. Based on the current (2010) acreage of developed parkland of 76.83 acres.			

As shown by Tables 5.3-10 and 5.3-11, additional developed parkland will be needed to achieve and maintain the desired ratio of parkland to population articulated by the 1992 General Plan. In the absence of requiring the dedication of additional parkland and the payment of in-lieu fees, a shortfall of parkland could occur as the City's population grows under any of the Equal-Weight Alternatives. As seen in Table 5.3-10 and 5.3-11, the Planning Commission Environmental Review Alternative would require the most additional developed parkland because it accommodates the largest population of the three alternatives.

As it has in the past, the City will continue to require new development to dedicate parkland, or to pay a parkland in-lieu fee, as allowed by State law while continuing to work toward a ratio of 5 acres of parkland per 1,000 residents.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for parks and recreation facilities and services (emphasis provided):

Policies

LU-1.3 Planned development requirement -- Neighborhood Village Areas. Development of areas designated Neighborhood Village shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- a. **Land use plan.** Each planned development application will include a land use diagram that clearly identifies the uses allowed in each neighborhood based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan will incorporate the range of uses described in Table LU-1, generally consistent with the percentages for each land use category.

Table LU-1: Target Land Use Requirements for Areas Designated <i>Neighborhood Village</i>	
Land Use Category	Gross neighborhood Acreage ¹
Estate Residential	5% of total ⁴
Low Density Residential	50% - 60% of total ⁴
Medium Density Residential	13% - 17% of total ⁴
High Density Residential	4% - 6% of total ⁴
Neighborhood Commercial	10 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

LU-1.4 Planned development requirement — Mixed Use Hillside Development. Development of areas designated Mixed Use Hillside Development shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- a. **Land use plan.** Each planned development application will include a land use diagram that clearly identifies the uses allowed in each portion of the site based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan will incorporate the range of uses described in Table LU-2, generally consistent with the percentages for each land use category.

Table LU-2: Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

PR-1.1 Parks and Recreation Facilities Master Plan. The City shall prepare and adopt a Parks and Recreation Facilities Master Plan which includes the following components:

- a. Locational standards;
- b. Preferred sites;
- c. Improvement and equipment standards;
- d. Development priorities;
- e. Financing mechanisms; and
- f. Development of community activity centers
- g. Sports facilities.
- h. Joint use facilities

PR-1.2 Parks standard. The City shall establish a minimum standard of five acres of developed parkland (combined pocket, neighborhood, and community) per 1,000 residents.

PR-1.3 Requirements for development. New development shall be required to assist in meeting the City's standard of five acres per 1,000 residents. To this end, the City shall require all new development to dedicate land, dedicate improvements, pay in-lieu fees, or a combination of these determined acceptable by the City, to the maximum extent authorized by law.

PR-1.4 Grant funding. The City shall pursue all available and appropriate county, state, federal and private funding for the acquisition of parkland and the development of park facilities.

- PR-1.5 Neighborhood parks.** Neighborhood parks shall be integrated into, and become focal points of, new residential neighborhoods. Pedestrian accessibility to these parks shall be emphasized.
- PR-1.6 Large-scale park complexes.** The City shall continue to promote the development of large-scale park complexes in Patterson (may be classified as community or regional parks).
- PR-1.7 Joint-use.** The City shall pursue and maintain agreements for joint-use of school facilities as a high priority for the development of new park and recreational facilities, especially for after-school activities.
- PR-1.10 Use of existing open space.** The City shall identify appropriate open spaces, including areas within the downtown and its western extension and along Salado Creek and Del Puerto Creek, for development of safe community activity areas.
- PR-1.12 Rehabilitation of existing parks.** The City shall assign high priority to the improvement and rehabilitation of parks in existing neighborhoods.
- PR-2.1 Private facilities.** The City shall promote the provision of private open space and recreation facilities in large-scale residential developments.
- PR-2.2 Employee recreation.** The City shall promote the inclusion of private outdoor and indoor recreation facilities in large commercial/industrial projects as a benefit for employees and as a means of reducing demand on public facilities.
- PR-2.3 Golf courses.** The City may encourage the development of golf courses in conjunction with major new development projects.
- PR-2.4 Commercial recreational facilities.** The City shall promote the development of commercial recreational facilities that meet community needs and complement public parks, facilities, and programs.

Implementation Measures

- PR-1** The City shall maintain and update a Park Master Plan that establishes goals, policies, and standards for the location, size, and level of development of all existing and proposed parks. The following definitions shall be used in the classification of parks:
- | | |
|--------------|-------------------|
| Pocket-Park | less than 3 acres |
| Neighborhood | 3 to 10 acres |
| Community | 10 to 50 acres |
| Regional | 50 or more acres |
- PR-2** The City shall regularly monitor county, state, and federal programs for funding of parkland acquisition, development, and rehabilitation. The City shall actively pursue funding for which it is qualified.

- PR-3 The City shall prepare, adopt, and periodically update a long-term Capital Improvement Program (CIP) that includes parks and recreational facilities.
- PR-4 The City shall maintain the joint-use agreement with the Patterson Joint Unified School District that provides use of school facilities for certain City-sponsored recreation programs.
- PR-5 The City shall investigate the purchase and rehabilitation of the historic Del Puerto Theater for use as a community theater and performing arts center.
- PR-6 The City shall pursue the development of a citywide network of pedestrian and bicycle pathways to integrate with existing and future regional, community, and neighborhood parks through the following:
 - o Implement recommendations in the 2001 Bicycle Transportation Master Plan; and
 - o Update the Plan by 2010.
- PR-7 The City shall work with the Patterson Joint Unified School District to develop and maintain a balanced recreation program which provides full inclusion for the interest groups represented in Patterson.
- PS-11 The City establish and collect development impact fees as needed for public services in accordance with Government Code §66000, et seq.

Policies LU-1.3 and LU1.4 require the dedication of 5 acres of parkland per 1,000 residents within areas designated Neighborhood Village and Mixed-Use Hillside Development, respectively. By applying this policy to newly developed areas, the City goal of achieving a ratio of 5 acres of developed parkland per 1,000 residents will be achieved over the 20-year and 40-year timeframes. With implementation of these recommended policies and mitigation measures, impacts relating to parkland would be **less than significant**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for parks and recreation includes the current City limits, as well as areas designated for urban development by each of the Equal-Weight alternatives for both the 20-year and 40-year growth boundaries.

Cumulative Impacts and Mitigation Measures

The discussion of project impacts under impact 5.3-3 considers the cumulative impacts to parks development throughout the City as it may be developed in accordance with each of the Equal-Weight Alternatives. Therefore, the recommended policies and implementation measures described above under impact 5.3-3 will reduce cumulative impacts to a **less than significant level**.

Schools

Setting

The City and the General Plan Study Area lie entirely within the boundaries of the Patterson Joint Unified School District (PJUSD). The District is bounded by the San Joaquin County line to the north, the San Joaquin River to the east, Marshall Road to the south, and Santa Clara and Alameda Counties to the west.

The schools within the PJUSD that serve Patterson, as well as enrollment at each school, are shown in Table 5.3-12.

Table 5.3-12: PJUSD, Patterson Area Schools Enrollment (2008-09)	
School	Enrollment
Elementary Schools	
Northmead Elementary School	872
Las Palmas Elementary School	622
Apricot Valley Elementary School	750
Middle School	
Creekside Middle School	1,277
High School	
Patterson High School	1,609
Del Puerto High School	99
Total Enrollment	5,229
Source: Patterson Joint Unified School District, 2010. http://www.patterson.k12.ca.us/sarcs.html	

School enrollment rose from 2004 to 2007, but has declined somewhat since, which is likely a function of the economic recession that began in 2008 which resulted in home foreclosures that tended to affect families with school-age children. High school enrollment decreased by about 50-70 students in 2009 from the previous year.

The PJUSD currently has a loading policy of 20 students per K-3 classrooms, 25 students per 4-6 classrooms, and 30 students per 7-12 classrooms. To accommodate enrollment increases that may be expected in the future, the School District has added portable classrooms at most of its school sites.

The School District owns a 12-acre site along Ward Avenue within the Patterson Gardens project area that it plans to use for an elementary school, and a 56-acre site located on the corner of Baldwin Road and Zacharias Road that it plans to use for a new high school. In addition, the School District recently constructed a new school on the corner of Walnut Avenue and Hartley Street within The Villages of Patterson project to be used initially for a K-8 school and later for a middle school for students in grades 6-8.

The Yosemite Community College District also serves the Patterson area. The nearest community college is Modesto Junior College in Modesto, which has two campuses. The main campus is located on College

Avenue, and Modesto Junior College West is located on Blue Gum Avenue. The two campuses offer a full program of courses suitable for transfer to a four-year college or university, as well as Associate of Arts degrees. The District has purchased a 10-acre site west of Ward Avenue and south of Sperry Avenue to construct a satellite campus in Patterson.

California State University, Stanislaus (CSUS), is located in Turlock, approximately 18 miles east of Patterson. CSUS offers a variety of four-year bachelor of arts and science degrees, and a limited number of masters of arts degrees. Chapman College in Modesto, a private college, also offers bachelors and masters degrees. A number of business and vocational schools are also located in Modesto. The John F. Kennedy Special Education Center in Modesto provides a complete range of classes for the trainable mentally retarded, developmentally handicapped, and multi-handicapped students, from 0 to 22 years of age. The center also provides vocational training and parent counseling.

Regulatory Setting

State Regulations

Leroy F. Greene School Facilities Act of 1998 (SB 50)

In 1998, the State Legislature enacted significant amendments to the statutory scheme for school fees with the adoption of the Leroy F. Greene School Facilities Act of 1998 (SB50). Senate Bill 50 included a \$9.2 billion bond measure which was approved by the voters as Proposition 1A in the November, 1998 election. The approval of Proposition 1A made operative other provisions of SB 50 that amended the laws governing school impact fees and other mitigation of school facilities impacts.

More specifically, SB 50 amended Government Code Section 65995(a) to prohibit state or local agencies from imposing school impact mitigation fees, dedications, or other requirements in excess of those provided in the statute. The legislation also prohibits local agencies from denying or conditionally approving a project based on the inadequacy of local school facilities. SB 50 establishes the base amount of impact fees at \$1.93 per square foot for residential construction and \$0.31 per square foot for commercial construction. In certain circumstances, school districts may impose alternate fees for new residential construction as prescribed by Government Code Section 65995.5 and 65995.7. Section 65995.5 provides a formula and establishes the criteria under which a revised fee for school impact mitigation may be imposed by the governing body of the school district. Section 65995.7 provides the circumstances under which a school governing board may increase the fee if state funding is not available.

For many school districts, this fee is not sufficient to cover the actual cost of new school facilities generated by each new student. Other funding sources, such as the sale of school facilities bonds, have helped bridge this gap. Another approach is for school districts to enter into agreements with local jurisdictions (cities and counties) for additional mitigation, usually in the form of supplemental fees. Another option is the issuance of bonds to generate revenue for the construction of school facilities. Residents within the Patterson Joint Unified School District voted in May 2001 to approve a general obligation bond to generate \$19.5 million for new school facilities construction.

The School District adopted its most recent School Facilities Needs Analysis on May 8, 2006. More recently, the District has prepared a draft fee justification study that it will consider for adoption in May,

2010². The draft study sets forth the facilities needs for the District for through 2015 and establishes development impact fees to help fund the acquisition of land and the construction of new schools. The study concludes that justification exists for the District to levy Level II and Level III fees on new residential construction within the District. In accordance with State law, Level II fees are currently \$4.25 per assessable square foot of residential construction and Level III fees are \$8.50 per assessable square foot of residential construction.

The Kindergarten-University Public Education Facilities Bond Act of 2002 (Prop. 47)

This act was approved by voters in November 2002 and provides for a bond issue of \$13.05 billion to fund necessary education facilities to relieve overcrowding and to repair older schools. Funds will be targeted at areas of greatest need and must be spent according to strict accountability measures. Funds will also be used to upgrade and build new classrooms in the California Community Colleges, the California State University, and the University of California in order to provide adequate higher education facilities to accommodate growing student enrollment.

California Department of Education

The California Department of Education (CDE) School Facilities Planning Division (SFPD) has prepared a School Site Selection and Approval Guide that provides criteria for locating appropriate school sites in the State of California. School site and size recommendations were changed by CDE in 2000 to reflect various changes in educational conditions, such as decrease in class sizes and use of advanced technology. The expanded use of school buildings and grounds for community and agency joint use and concern for the safety of the students and staff members also influenced the modification of the CDE recommendations.

Specific recommendations for school size are provided in the publication, School Site Analysis and Development. This document suggests a ratio of 1:2 between buildings and land. CDE is aware that in a number of cases, primarily in urban settings, smaller sites cannot accommodate this ratio. In such cases, the SFPD may approve an amount of acreage less than the recommended gross site size and building-to-ground ratio.

Certain health and safety requirements for school site selection are governed by state regulations and the policies of the SFPD relating to:

- Proximity to airports, high-voltage power transmission lines, railroads, and major roadways;
- Presence of toxic and hazardous substances;
- Hazardous facilities and hazardous air emissions within one-quarter mile;
- Proximity to high-pressure natural gas lines, propane storage facilities, gasoline lines, pressurized sewer lines, or high-pressure water pipelines;
- Noise;
- Results of geological studies or soil analyses; and
- Traffic and school bus safety issues.

² Jack Shreder and Associates, Draft School Facilities Needs Analysis for the Patterson Joint Unified School District, April, 2009

Standards of Significance

Pursuant to the State CEQA Guidelines, the proposed General Plan update would result in potentially significant impacts if the General Plan would result in substantial adverse physical impacts associated with provision of new development, the construction of which could cause significant environmental impacts, in order to maintain performance objectives. Therefore, the evaluation of school impacts under CEQA is limited to those effects with the potential to result in physical impacts, such as the need for construction of new classrooms or placement of portable classrooms.

In addition, for purposes of this EIR, the provisions of SB 50 are deemed to provide full and complete school facilities mitigation and a local agency may not deny or refuse land use entitlements on the basis that school facilities are inadequate, notwithstanding the provisions of CEQA. The provisions of SB 50 are the exclusive means of both “considering” and “mitigating” school facilities impacts of projects (California Government Code Section 65996(b)). Thus, with the Level II statutory fee in place, all impacts of a project related to school facilities are mitigated because under SB 50, the statutory fees constitute full and complete mitigation as a matter of law.

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential school facility impacts was based on consultation with the Patterson Joint Unified School District, its website, as well other relevant literature.

Increased Demand for School Facilities

Impact 5.3.-4 The increased population accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would generate additional students with a corresponding increase in the demand for school facilities provided by the PJUSD. This impact is considered potentially significant.

Development accommodated by the Equal-Weight Alternatives would generate additional students at each grade level. Table 5.3-14 shows the number of students that could be expected for each alternative’s 20-year and 40-year populations. As shown on Table 5.3-14, student populations would increase substantially under each alternative; the projected increase in enrollment would exceed the capacity of existing school facilities.

The District’s Draft School Facilities Needs Analysis establishes student generation rates for new single-family and multi-family dwellings as follows:

Table 5.3-13: Student Generation Rates

Grades	SFR	MFR
K-5	0.3400	0.3580
6 to 8	0.1610	0.0750
9 to 12	0.1810	0.0750
Total:	0.6820	0.5080
Source: Jack Shreder and Associates, Draft School Facilities Needs Analysis for the Patterson Joint Unified School District, April, 2009		

Table 5.3-14 provides a summary of additional school-aged children generated by each of the Equal-Weight Alternatives for both the 20-year and 40-year growth boundaries.

Table 5.3-14: Projection of Additional School-Aged Children

Alternative	School-Aged Children By Grade			
	K-5	6 to 8	9 to 12	Total
Current Enrollment	2,244	1,277	1,708	5,229
Students Added in 20 Years				
Compact Development	3,193	1,076	1,166	5,435
Jobs Emphasis	3,390	1,130	1,224	5,744
Planning Commission Env. Review Plan	5,471	1,857	2,015	9,343
Students Added in 40 Years				
Compact Development	4,525	1,566	4,525	10,616
Jobs Emphasis	5,620	1,971	5,620	13,212
Planning Commission Env. Review Plan	6,820	2,379	6,820	16,019
Total Enrollment at 40 Year Buildout				
Compact Development	6,769	2,843	6,233	15,845
Jobs Emphasis	7,864	3,248	7,328	18,441
Planning Commission Env. Review Plan	9,064	3,656	8,528	21,248
Sources: Source: Jack Shreder and Associates, Draft School Facilities Needs Analysis for the Patterson Joint Unified School District, April, 2009 CMCA, 2009				

As discussed above under the Regulatory Setting, SB 50 preempts a city or school district from levying or imposing additional fees (or other mitigation) in connection with, or made a condition of, any new land use approval as additional mitigation for the impacts of land use approvals on school facilities. In addition, a local agency may not deny or refuse land use entitlements on the basis that school facilities are inadequate, notwithstanding other provisions of the law, including CEQA. The provisions of SB 50 are the exclusive means of both “considering” and “mitigating” a project’s impacts on school facilities.

Several new school sites would be accommodated by each of the Equal-Weight Alternatives. The School District owns a 12-acre site along Ward Avenue in the Patterson Gardens project area that it plans to use for an elementary school, and a 56-acre site located north of Zacharias Road at Baldwin Road that it plans to use for a high school. The timing of the construction of these facilities will be based on the availability of funds and the demand for these facilities.

The Villages of Patterson Development Plan EIR (2006) also notes that two additional school sites could be accommodated within that project’s boundaries, both of which would be K-5 facilities.

The specific impacts under for each alternative are described below.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for school facilities (emphasis provided):

Policies

LU-1.3 Planned development requirement -- Neighborhood Village Areas. Development of areas designated Neighborhood Village shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- b. **Land use plan.** Each planned development application will include a land use diagram that clearly identifies the uses allowed in each neighborhood based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan will incorporate the range of uses described in Table LU-1, generally consistent with the percentages for each land use category.

Table LU-1: Target Land Use Requirements for Areas Designated *Neighborhood Village*

Land Use Category	Gross neighborhood Acreage¹
Estate Residential	5% of total ⁴
Low Density Residential	50% - 60% of total ⁴
Medium Density Residential	13% - 17% of total ⁴
High Density Residential	4% - 6% of total ⁴
Neighborhood Commercial	10 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

LU-1.4 Planned development requirement — Mixed Use Hillside Development. Development of areas designated Mixed Use Hillside Development shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- b. **Land use plan.** Each planned development application will include a land use diagram that clearly identifies the uses allowed in each portion of the site based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan will incorporate the range of uses described in Table LU-2, generally consistent with the percentages for each land use category.

Table LU-2: Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

- PS-7.1 School sites.** The City shall assist the Patterson Joint Unified School District and others in locating and reserving appropriate sites for new schools.
- PS-7.2 School size standards.** Standards established by the Patterson Joint Unified School District shall be considered in determining the number and location of new school sites. These standards are based on the assumed average number of students per household for each grade level (which varies for different types of housing) and the average size of an elementary school, junior high school, or high school.
- PS-7.3 School siting standards.** New elementary schools should, to the extent practicable, be located on collector streets within residential areas. Elementary schools should be sited to avoid bafflers such as railroad tracks and arterial streets that would separate them from the surrounding residential areas.
- PS-7.4 Enrollment trends.** The City shall work cooperatively with the Patterson Joint Unified School District in monitoring housing, population, and school enrollment trends to plan for future school facility needs.
- PS-7.5 Financing of new schools.** The City shall support enactment of state legislation to finance the construction of new schools.

- PS-7.6 Development impact.** The City shall approve only those development proposals that have recognized and mitigated their full impact on school facilities, as determined by the City Council. The City shall work with the Patterson Joint Unified School District to identify, establish, and implement additional measures that may be necessary to adequately finance school facilities in the city.
- PS-7.7 School facilities concurrent with residential development.** The City shall require, to the extent possible, that new school facilities are constructed concurrently with new residential development.
- PS-7.8 Library services.** The City shall support the efforts of the Stanislaus County Public Library in providing services to the citizens of Patterson.
- PS-7.9 Higher education.** The City shall support the location of a junior college and other higher education facilities in Patterson or western Stanislaus County. (See Goal ED-2 in the Economic Development Element.)

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to school facilities. In addition, pursuant to Section 65995 (3)(h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998), the payment of statutory fees “..is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization.” Therefore, by continuing to require the payment of statutory fees, school impacts would be considered **less than significant**.

Additional Mitigation

None are available to the City.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for schools includes the boundaries of the Patterson Unified School District.

Cumulative Impacts and Mitigation Measures

The discussion of project impacts under impact 5.3-4 considers the cumulative impacts to school facilities serving Patterson as it may be affected by development accommodated by each of the Equal-Weight Alternatives. Therefore, the impacts, policies and implementation measures described above under impact 5.3-4 apply to cumulative impacts and will reduce cumulative impacts to a less than significant level.

Health Care

Setting

The City of Patterson and the General Plan Study Area lie within the boundaries of the Del Puerto Health Care District (DPHCD or District). The District was formed in 1947 for the purpose of funding hospital services in Patterson, and covers not only the city, but also the unincorporated portions of western Stanislaus County, west of the San Joaquin River. Unincorporated communities in the District include Westley, Crows Landing, Vernalis and Grayson.

Hospital/Healthcare Districts may exercise the following powers: to establish, maintain, and operate, or provide assistance in the operation of, one or more health facilities or services, including but not limited to outpatient programs, services and facilities; retirement programs; chemical dependency programs, services and facilities, or other healthcare programs, services, facilities, and activities at any location inside and outside the district for the benefit of the district and people served by the district; to acquire, maintain, and operate ambulances, or ambulance services inside and outside the district; and to establish a nurses' training school, or child care facility for the benefit of employees of the hospital or residents of the district (Health and Safety Code Section 32121). The following discussion was derived from the Stanislaus Local Agency Formation Commission draft Municipal Service Review and Sphere of Influence Plan for the Del Puerto Health Care District³.

The District provided hospital services until 1998 when, for economic reasons, the hospital was forced to close. The District has maintained ambulance services since 1986, paid all outstanding debts, and as of June of 2003, provides outpatient care through the Del Puerto Health Center. Current services and programs include the following:

- The Patterson District Ambulance provides emergency medical services within the District. Ambulances are staffed with Paramedics and EMTs. Currently, one 24-hour and one 12-hour ambulance serve the District, as well as provide mutual aid to surrounding areas. As a service to area hospitals, the District offers long distance and critical care transports, which allow the Patterson Ambulance to assist with the overcrowded system. The District is able to provide 18 trips per week without straining resources.
- Del Puerto Health Center provides 6-day a week urgent/primary care to west Stanislaus County. The Center is open Monday through Friday 8:30 a.m. - 8:30 p.m. and Saturday 8:30 a.m. - 4:30 p.m. Services include primary care, women's health exams, obstetrics, family care, industrial medicine, drug screenings, physicals, workers compensation care, urgent care, etc. Specialized pediatric care is provided Monday through Friday 8 a.m. - 5 p.m. Other visiting specialists include cardiologists and neurologists. The Center also provides lab and X-ray services.
- The District promotes community education and outreach efforts, including but not limited to the following: providing nursing and paramedic scholarships; public service/education on topics such as: seatbelt safety, safe fireworks, stroke information, etc; as well as attends community events (e.g. Patterson Apricot Festival and Health Fairs). The District also sponsors Project FIITNESS (Fostering Individual Improvement Through Nutrition Exercise Student Specialists), a club for middle school students to prevent diabetes. Other sponsorships or collaborations include women's health events held twice a year (for breast exams, pap exams, and cholesterol

³ Stanislaus Local Agency Formation Commission Draft Municipal Service Review and Sphere of Influence Update for the Del Puerto Health Care District, 2009

screenings), and a heart healthy screening program in the spring. The District is currently applying for a comprehensive perinatal services program.

- The Patterson Ambulance staff provides CPR and first aid classes. This low cost service targets individuals, businesses, and those whose job requires certification. Five employees are trained to teach.
- The District is designated as a teaching facility. Staff training is not only provided, but periodically, the District partners with the Patterson Fire District and Westside Ambulance to provide mutual training and has hosted EMS Agency training. Senior paramedics precept paramedic and EMT interns. The District assists with the emergency medical system by training approximately 8 Paramedics a year and providing paramedic scholarships to District EMTs.

According to the District's Impact Fee Study, the estimated total service population for the District was 22,189 persons in 2005. The study projects a total service population of 55,511 in 2020. This estimate was made using a combination of data including, current population and employment, Stanislaus Council of Government's population projections, and information regarding approved developments, including those in the City of Patterson that have not yet been built-out (e.g. Villages of Patterson). In 2008, the District responded to over 1,500 ambulance calls (an average of 125 calls per month) and served approximately 6,500 patients and 26,000 visits at their Health Center.

The District created a Strategic Plan which covers all aspects of future medical care needs for the Westside. In 2008, it was determined that the Health Center is out of room and that instead of expanding to an additional space, the District plans to purchase or construct a building to house specialists, additional providers, and ancillary services. The District Board has chosen a location and is working towards the creation of a new health center.

Given the increased demand for healthcare services, the District's Health Center has outgrown its current location and it is anticipated to relocate in 2010. The District has negotiated to purchase a 30,000 square foot building, which would allow for the Health Center to more than double in size, providing more space for procedures, stress and echo testing, colo-rectal screenings, and additional space for specialists and family physicians.

The District owns and maintains four ambulances and all equipment necessary to place the ambulances in service. The District also owns all equipment necessary to provide services to the Health Center. Patterson Ambulance provides fire-standby for local and state fire agencies, and standby for sporting and other local events.

While there is no operating hospital in the DPHCD, the District continues to receive taxes within its boundaries, and is managed by a five-member board elected at large.

The private, non-profit Golden Valley Health Center at State Highway 33 and "C" Street serves underserved communities and is currently expanding its hours and services with a grant from the state's Healthy Families Program. The nearest acute care and emergency care medical facilities are regional facilities located in Turlock (19 miles), Modesto (21 miles), and Tracy (about 29 miles).

At the time of publication of the Notice of preparation for this EIR, the Health Care District was in the process of relocating their administrative offices and clinic to the Keystone Business Park.

Regulatory Setting

State Regulations

DPHCD is a California health care district organized and providing services under the Local Health Care District Law (Cal. Health and Safety Code Sections 32000 et seq.).

Regulatory direction contained in the City's General Plan is described in the "Draft General Plan Policy Response" section of this analysis.

Standards of Significance

State CEQA Guidelines Appendix G. states that a significant impact to emergency services would occur if implementation of the proposed project:

1. Would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services.

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential health care services impacts was based on information provided by the Del Puerto Health Care District, as well other relevant literature.

Construction of Health Care Facilities

Impact 5.3.-5 The Compact Development, Jobs Emphasis or PC Environmental Review Alternatives would generate additional population and employment opportunities in Patterson within the 20-year and 40-year growth boundaries, which in turn will increase the demand for health care facilities which in turn will require the construction of new health care facilities. This is considered a potentially significant impact.

The additional urban development accommodated by each of the Equal-Weight Alternatives will in turn generate additional population and employment within the service area of the Del Puerto Health Care District. The projected population accommodated by each alternative is summarized in Table 5.3-15.

The demand for health care facilities would increase as development occurs. The existing community clinics are not designed to accommodate the health care needs of a City with a population of 57,000 to 75,000, which would occur from development accommodated by the 40-year growth boundaries for the Compact Development (lowest) and Planning Commission Environmental Review (highest) alternatives.

The nearest emergency medical services are located in Turlock and Modesto, each about 20 miles away. In a medical emergency, the distance and time required to transport victims to emergency care may create life-threatening situations.

Table 5.3-15: Summary Development Holding Capacity of Equal Weight Alternatives

Attributes	Existing in 2009	Compact Development		Jobs Emphasis		PC Env. Review Plan	
		Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	6,007	15,153	18,992	15,711	22,151	21,687	25,589
Population	21,229	46,360	57,510	47,831	66,673	64,389	75,863
Jobs	3,914	21,491	25,374	26,601	28,884	25,744	28,826
Notes:							
1. Source: CMCA, 2009							

In March, 2006 the District adopted a development impact fee justification study which lists several possible new facilities, including:

- A hospital
- Medical Office Building
- Ambulatory Surgery Center
- Assisted Living Facility
- Skilled Nursing Facility
- Ambulances

The fee study accounts for existing and approved developments, including the Villages of Patterson project. However it did not account for the level of future development anticipated for the City of Patterson under the Equal-Weight Alternatives. The report concludes that the Del Puerto Health Care District cannot generate the need for these facilities from the population within the District. It is not known whether the additional population for the City of Patterson would change this conclusion.

In accordance with the standard of significance recommended by Appendix G of the CEQA Guidelines, impacts to emergency services may occur if physical impacts to the environment would result from the construction of additional facilities needed to maintain an acceptable level of service. In this context, an absence of funding for the new facilities does not constitute a physical impact to the environment. The need for new or expanded medical facilities in the Patterson area is a financial and public policy issue, to be determined by the coordinated efforts of the DPHCD and communities within the District, including the City of Patterson.

However, the construction of new health care facilities that may be required to serve the increased population associated with the Equal-Weight Alternatives could result in significant physical impacts to the environment. The precise number and location for such facilities would be determined as development accommodated by any of the Equal-Weight Alternatives proceeds. Potential construction-related impacts include the same as those discussed under impact 5.3-2, above. For this reason, impacts associated with the provision of new health care facilities are considered significant and unavoidable.

Draft Policy Document Response

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of fire stations. In addition, the construction of future public facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of new health care facilities. Nonetheless, the ability to mitigate certain potential impacts is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new health care facilities that may be needed to serve the expanded service population remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

The draft General Plan also provides the following policies to address the future demand for health care services:

- PS-8.1 Healthcare facilities.** The City shall support the development and maintenance of adequate hospital and acute health care facilities in Patterson.
- PS-8.2 Convalescent facilities.** The City shall encourage the development of convalescent facilities in the city.
- PS-8.3 Demographic changes.** The City shall cooperate with the Patterson Health Care District in identifying and evaluating the impacts of demographic changes which may affect the need for new medical facilities.
- PS-8.4 Facility financing.** The City shall assist and cooperate with the Patterson Health Care District in levying and collecting fees to aid in the financing of necessary capital improvements to the health care facilities of the district.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for health care includes the City of Patterson, the General Plan Study Area as it may be developed in accordance with the Equal-Weight Alternatives, as well as the boundaries of the Del Puerto Health Care District.

Cumulative Impacts and Mitigation Measures

As discussed in the Setting section above, the District's 2006 Development Impact Fee Justification Study assumed a 2020 service area population of 55,511. The fee study assumed the population of Patterson would continue to be governed by the 1992 General Plan which will accommodate about 33,000 residents by the year 2020. However, the District's fee study did not anticipate the additional population accommodated by the Equal-Weight General Plan Alternatives, nor development associated with the West Park Specific Plan project. Depending on the Equal-Weight Alternative chosen, and the resulting pace of development over the next ten years, the City's population alone by 2020 could be as

much as 50,000 which is just less than the total service area population assumed by the District's fee justification study. In addition, the Notice of Preparation for the West Park Specific Plan project suggests that the project may accommodate as many as 37,000 jobs over the next 30 years. Together, the future service population for the District associated with City and the West Park project will likely exceed the District's projected service population for 2020. In 2010 it is unknown what additional health care facilities (if any) would be needed to serve the additional service population. For this reason, cumulative impacts to health care are considered **cumulatively considerable and significant and unavoidable**.

Draft General Plan Policy Response

The policies identified above for project impacts will help reduce cumulative impacts to health care facilities. However, the physical impacts associated with the construction of as yet undetermined health care facilities that may be needed to serve the expanded service population are unknown. For this reason, cumulative impacts to health care are considered **cumulatively considerable and significant and unavoidable**.

Solid Waste

Setting

The City of Patterson provides mandatory solid waste collection to all residents and businesses in the City, as well as unincorporated areas adjacent to the City. According to the California Integrated Waste Management Board's website, the City recycled about 61 percent of its solid waste in 2006, the most recent year for which data are available⁴. Recycling is by way of a green waste/garbage separation program, and through the operation of a recycling center.

The City has a franchise agreement with Bertolotti Patterson Disposal, which serves a majority of City residences with trash and curbside recycling collection services. These services include weekly collection for single family homes, mobile homes, and multi-family residences. Bertolotti Disposal also provides commercial and industrial waste pickup. Recycling containers are provided at no cost to interested participants.

The City's non-recyclable waste is disposed of at the Fink Road Landfill, located west of Crows Landing. The waste-to-energy facility at that location also burns refuse and provides electricity to PG&E. The landfill receives non-recyclable materials from all of Stanislaus County. The landfill capacity is 14.5 million cubic yards, and is currently operating at 31% capacity, leaving a remainder of 10 million cubic yards of capacity. The facility is permitted to receive 2,400 tons per day; at that rate of disposal, the landfill is expected to reach capacity by 2023⁵.

In 2007, the landfill received 134,574 tons of waste⁶. This translates to an average of 369 tons per day, which is a 17% reduction from the previous year, and considerably less than the permitted daily rate of disposal. The life of a landfill depends to a large extent on the density of the waste received, since the permit is based on the weight of the waste, not the volume. The lighter the waste, the more volume it will consume. Typically, solid waste density varies considerably, from as little as 220 pounds per cubic yard

⁴ CIWMB, Facility/Site Summary Details:

<http://www.calrecycle.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=616&JUR=Patterson> accessed March 2010

⁵ <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile1.asp?COID=50&FACID=50-AA-0001>

⁶ <http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/LFProfile2.asp?COID=50&FACID=50-AA-0001>

for auto tires, to as much as 2,400 to 3,000 pounds per cubic yard for various earth materials⁷. However, most household materials are within a range of 800 to 1,600 pounds per cubic yard.

Assuming an overall average of 1,200 pounds per cubic yard for all waste, and assuming the 2007 waste stream level of 369 tons per day continues into the future, the remaining life of the landfill would be about 45 years. Note that if the average density of waste were reduced to 1,000 pounds per cubic yard, the remaining life would be reduced to 37 years. At the same time, continued diversion of waste to recycling may increase the lifespan of the landfill. Thus, the life of the landfill cannot be accurately known at this time, but for planning purposes it can be estimated to be from 35 to 50 years.

The next permit review for the Fink Road Landfill will be in August 2012, at which time capacity and possible expansion issues could be considered.

Waste Generation Rates

As reported to the California Integrated Waste Management Board, daily waste generation factors for Patterson were approximately 3.9 pounds per capita per day for residential uses and 12.2 pounds per employee per day for non-residential uses in 2008⁸. Based on these waste generation factors, in 2009 the City generated approximately 82,793 pounds of residential waste per day or about 15,110 tons for the year (based on a population of 21,229), and 47,750 pounds of non-residential waste per day or about 8,714 tons for the year (based on 3,914 employees citywide). Overall, the City generated about 23,824 tons of solid waste in 2009. With a recycling rate of about 61 percent, an estimated 14,533 tons of Patterson's annual waste stream were diverted from landfills in 2009. This means about 9,291 tons of waste from Patterson enters the landfill annually. Assuming 1,200 pounds per cubic yard, an estimated 15,486 cubic yards per year enters the landfill from Patterson's existing development.

Regulatory Setting

Federal Regulations

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to address the huge volumes of municipal and industrial solid waste generated nationwide. After several amendments, the act as it stands today governs the management of solid and hazardous waste and underground storage tanks (USTs). RCRA, enacted in 1976, is an amendment to the Solid Waste Disposal Act of 1965. RCRA has been amended several times, with the most substantial changes made by the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA is a combination of the first solid waste statutes and all subsequent amendments. RCRA authorizes EPA to regulate waste management activities. RCRA authorizes states to develop and enforce their own waste management programs, in lieu of the federal program, if a state's waste management program is substantially equivalent to, consistent with, and no less stringent than the federal program.

State Regulations

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (AB 939) requires every city and county in the state to prepare a Source Reduction and Recycling Element to its Solid Waste Management Plan that

⁷ <http://www.calrecycle.ca.gov/SWFacilities/CDI/Tools/Calculations.htm>

⁸ <http://www.calrecycle.ca.gov/LGCentral/Tools/mars/DrmcMain.asp?VW=Disposal>

identifies how each jurisdiction will meet the mandatory state waste diversion goals of 25 percent by 1995 and 50 percent by 2000 and beyond. The purpose of AB 939 is to “reduce, recycle, and re-use solid waste generated in the state to the maximum extent feasible.” The term “integrated waste management” refers to the use of a variety of waste management practices to safely and effectively handle the municipal solid waste stream with the least adverse impact on human health and the environment. The act has established a waste management hierarchy, as follows: source reduction; recycling; composting; transformation; and disposal.

California Integrated Waste Management Board Model Ordinance

Subsequent to the Integrated Waste Management Act, additional legislation was passed to assist local jurisdictions in accomplishing the goals of AB 939. The California Solid Waste Re-use and Recycling Access Act of 1991 (Sections 42900–42911 of the Public Resources Code) directs the California Integrated Waste Management Board (CIWMB) to draft a “model ordinance” relating to adequate areas for collecting and loading recyclable materials in development projects. Upon speaking with Annette Kwock, Solid Waste/Recycling Coordinator, the City passed a Construction and Demolition Ordinance which came into effect in December, 2008. AB 1327 California Solid Waste Reuse and Recycling Access Act The Solid Waste Reuse and Recycling Access Act of 1991 required each jurisdiction to adopt an ordinance by September 1, 1994, requiring each development project to provide an adequate storage area for collection and removal of recyclable materials.

Stanislaus County Integrated Waste Management Plan

The Stanislaus County Solid Waste Management Plan was formulated jointly by the County and nine cities in the County, including Patterson. In accordance with State law, the Plan lists countywide waste management practices in order of priority; these are (a) source reduction; (b) recycling and composting; (c) environmentally safe transformation (burning waste to generate electricity); and (d) landfill (for waste that cannot be disposed of in any other manner).

The California Integrated Waste Management Board mandates review of all countywide solid waste management plans every five years. Accordingly, the Countywide Integrated Waste Management Plan was adopted in October 2007, which addresses the combined waste collection issues for the County and cities within the county, with the exception of the City of Modesto.

Standards of Significance

According to Appendix G of the State CEQA Guidelines, a significant impact to solid waste service would occur if future development would result in the following:

1. Production of quantities of solid waste that would exceed the capacity of the landfill(s) that will serve the project’s solid waste disposal needs.
2. Non-compliance with federal, state, and local statutes and regulations related to solid waste.

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential solid waste impacts was based on consultation with staff from the City of Patterson, as well relevant literature including information from the California Integrated Waste Management Board and its related website.

Increased Demand for Solid Waste Disposal

Impact 5.3.-6 Future development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will generate additional solid waste which in turn will reduce capacity of the landfill serving the City. This impact is considered less than significant.

Development accommodated by each of the Equal-Weight Alternatives would generate a substantial amount of solid waste which will increase over time as the City grows. Table 5.3-16 quantifies the solid waste generation associated with each Equal-Weight Alternative.

In addition to solid waste, sludge produced at the wastewater treatment plant will require disposal at a landfill. Assuming the sludge is de-watered to about 20 percent solids, sludge produced at buildout of the Planning Commission Environmental Review Alternative (the alternative with the highest population) will be about 10,000 tons per year. However, the sludge is expected to be dried which will reduce the sludge production to about 7,000 tons per year. Assuming total sludge produced by development within the 20-year growth boundary is about 2/3 of the buildout total, about 4,620 tons per year will require disposal by 2030 and 7,000 tons by 2050.

Brine generated through the treatment of groundwater and surface water will also necessitate disposal at a landfill. As discussed under impact 5.3-4 in section 5.4- Water Supply, brine production could result in about 31 tons per year of concentrated salts at the 40-year timeframe that would be hauled to landfill periodically.

As shown on Table 5.3-16, the total solid waste generated by development within the 20-year growth boundary, exclusive of wastewater sludge, would range from about 80,846 tons per year for the Compact Development Alternative to about 103,148 tons per year for the PC Environmental Review Alternative. Current waste generation for the City is 23,824 tons per year, not accounting for recycling. As part of the county's integrated solid waste service area, the City reports a recycling rate of 61%, which suggests that the majority of the waste generated is diverted from landfills. Assuming the same rate of recycling continues into the future, the total amount of solid waste to be added to landfills (exclusive of sludge) through buildout of the Equal-Weight Alternatives would be 39% of the total waste generated and would range from about 31,530 to 40,228 tons per year. When wastewater sludge is added, the total solid waste disposed at the landfill would range from 36,150 tons per year (Compact Development) to 44,848 tons per year (PC Environmental Review).

Impacts associated with each Equal-Weight Alternative for the 20-year and 40-year growth boundaries are provided below in Tables 5.3-16 and 5.3-17, respectively.

**Table 5.3-16: Projected Solid Waste Generation --
20-Year Growth Boundary
(Tons Per Year)**

Land Use Category		Tons Per Year By Alternative		
		Compact Development	Jobs Emphasis	PC Env Review Plan
Existing	Residential ¹	15,110	15,110	15,110
	Commercial/Industrial ¹	8,714	8,714	8,714
New Development	Residential ¹	17,887	18,934	30,719
	Commercial/Industrial ¹	39,135	50,514	48,604
Total		80,846	93,271	103,148
Less 61% Diversion ²		49,316	56,896	62,920
Sub-Total:		31,530	36,376	40,228
Wastewater Sludge ³		4,620	4,620	4,620
Brine/Concentrated Salts ⁴		31	31	31
Total Added to Landfill (tons/year)		36,181	41,027	44,879
Total Added to Landfill (cu. yds/yr) ⁵		60,281	68,357	77,777
Notes and Sources: 1. Solid waste generation factors: Commercial/Industrial = 12.2 pounds/day/employee; Residential = 3.9 pounds/day/person. Source: California Integrated Waste Management Board, http://www.calrecycle.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=616&JUR=Patterson accessed March 2010 2. 61% diversion rate is based on regional rate, reported in http://www.calrecycle.ca.gov/LGCentral/Tools/mars/DrmcMain.asp?VW=In 3. Assumes 18.48 tons per day in 2030 and that air drying results in 30 percent solids. 4. The reader is referred to the discussion under impact 5.3-4 of Section 5.4 – Water Supply. 5. Assumes 1,200 pounds (0.6 tons) per cubic yard. By this factor, existing solid waste disposal to landfill is 9,425 cubic yards per year.				

**Table 5.3-17: Projected Solid Waste Generation -- 40-Year Growth Boundary
(Tons Per Year)**

Land Use Category		Tons Per Year By Alternative		
		Compact Development	Jobs Emphasis	PC Env Review Plan
Existing	Residential ¹	15,110	15,110	15,110
	Commercial/Industrial ¹	8,714	8,714	8,714
New Development	Residential ¹	25,823	32,345	38,885
	Commercial/Industrial ¹	47,780	55,456	55,466
Total at Projected 40-Year Development		97,427	111,625	118,176
Less 61% Diversion ²		59,431	68,091	72,087
Sub-Total:		37,997	43,534	46,088
Wastewater Sludge ³		7,000	7,000	7,000
Brine/Concentrated Salts ⁴		31	31	31
Total Added to Landfill (tons/year)		45,028	50,565	53,119
Total Added to Landfill (cu. yds/yr) ⁵		75,026	84,254	88,511
Notes and Sources: 1. Solid waste generation factors: Commercial/Industrial = 12.2 pounds/day/employee; Residential = 3.9 pounds/day/person. Source: California Integrated Waste Management Board, http://www.calrecycle.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=616&JUR=Patterson accessed March 2010 2. 61% diversion rate is based on regional rate, reported in http://www.calrecycle.ca.gov/LGCentral/Tools/mars/DrmcMain.asp?VW=In 3. Assumes 28 tons per day in 2050 and that air drying results in 30 percent solids. 4. The reader is referred to the discussion under impact 5.3-4 of Section 5.4 – Water Supply. 5. Assumes 1,200 pounds (0.6 tons) per cubic yard. By this factor, existing solid waste disposal to landfill is 9,425 cubic yards per year.				

As discussed in the Setting section above, the Fink Road Landfill has a remaining capacity of 10 million cubic yards. The facility is permitted to receive 2,400 tons per day, and is projected to close in 2023 if it accepts waste at that maximum daily rate. However, it is currently receiving about 369 tons per day. If this rate were to continue into the future, the remaining life of the landfill could be 35 to 50 years from 2010. This would depend on several factors, including:

- Whether the waste stream received at the landfill remains around 369 tons per day;
- The density of the waste; and
- The rate at which solid waste is recycled.

The Fink Road Landfill has sufficient capacity for an additional 10 million cubic yards of solid waste over current levels (estimated to be 6 million tons, assuming 0.6 tons per cubic yard). If there were no other source of solid waste entering the landfill, Patterson's contribution (assuming full buildout of the Planning Commission Environmental Review Alternative occurred immediately), would take 130 years to bring the facility to capacity. Thus, there is ample capacity to accommodate Patterson's contribution to

the landfill within the life of the Equal-Weight Alternatives, and project-specific impacts would be less than significant.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for solid waste capacity:

Policies

- PS-4.1 Reduction goals.** The City shall study and actively pursue methods of solid waste recycling and reuse, including source separation, with the goal of reducing its solid waste generation by 25 percent by the year 2015 and 50 percent by the year 2020.
- PS-4.2 Garbage collection.** The City shall continue to require mandatory garbage collection throughout the city.
- PS-4.3 Waste-to-energy plant.** The City shall promote the continuing use of the Fink Road waste-to-energy plant and will work with Stanislaus County to improve its capacity.
- PS-4.4 Construction debris.** The City shall require the separation and recycling of all recyclable or reusable materials from construction debris.
- PS-4.5 Hazardous waste disposal.** The City shall cooperate with the Stanislaus County Certified Unified Program Agency (CUPA) and support the safe transportation, handling, recycling, and disposal of hazardous materials.
- PS-4.6 Recyclable products.** The City, in its day-to-day operations, shall lead the community by example in purchasing recyclable materials wherever feasible, and recycling all materials that are recyclable. (See Policy PS-4.7, below, and Implementation Measure NR-9.)
- PS-4.7 Materials consumption.** The City, in its day-to-day operations, shall not use disposable or single-use materials for which there are equivalent and feasible replacements that are better for the environment. (See Implementation Measure NR-9.)
- PS-4.8 Private usage of recycled products.** The City shall encourage businesses and residents to purchase and use recycled and recyclable products.
- PS-4.9 Green waste recycling.** The City shall explore the feasibility and benefits of expanding recycling services to offer green waste recycling.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to solid waste. Nevertheless, implementation of any of the Equal-Weight alternatives would allow for a substantial increase in solid waste generation within the City and the Study Area. However, this increase can be accommodated within the capacity of the existing landfill, in the context of the timeframe of the Equal-Weight Alternatives. Therefore, project impacts are considered **less than significant**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for solid waste includes cities and unincorporated areas of Stanislaus County that contribute waste to the landfill.

Cumulative Impacts and Mitigation Measures

Impact 5.3.-7 Future development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with solid waste generated by regional development will generate additional solid waste which in turn will exceed the capacity of the landfill serving the City. This impact is considered cumulatively considerable.

As noted in the Setting, the landfill received 134,574 tons of waste in 2007 or about 0.2585 tons per year per capita (based on a 2007 County population of 520,506)⁹. The Stanislaus Council of Governments has projected total County population in 2030 to be about 791,332¹⁰. This projection assumes a 2030 population for Patterson of about 39,067 which is less than the 20-year populations accommodated by each of the Equal-Weight Alternatives for the 20-year growth boundaries (see Table 5.3-15), and does not include waste generation associated with the West Park project. By adding the 20-year population associated with the Planning Commission Environmental Review Alternative (the largest population of the three alternatives) to the 2030 County population provides an adjusted future population for the County as shown in Table 5.2-18. Assuming the same per capita rate of solid waste generation experienced in 2007, the total additional solid waste disposed of in the landfill between 2007 and 2030 would be about 4 million tons, which is less than the remaining estimated capacity of 6 million tons. This figure is obtained by adding the volumes of the columns shown in Figure 5.3-2 which provides projection of the annual waste stream to the landfill between 2007 and 2030. Thus, cumulative impacts associated with development within the 20 year growth boundaries of each Equal-Weight Alternative would be less than cumulatively considerable.

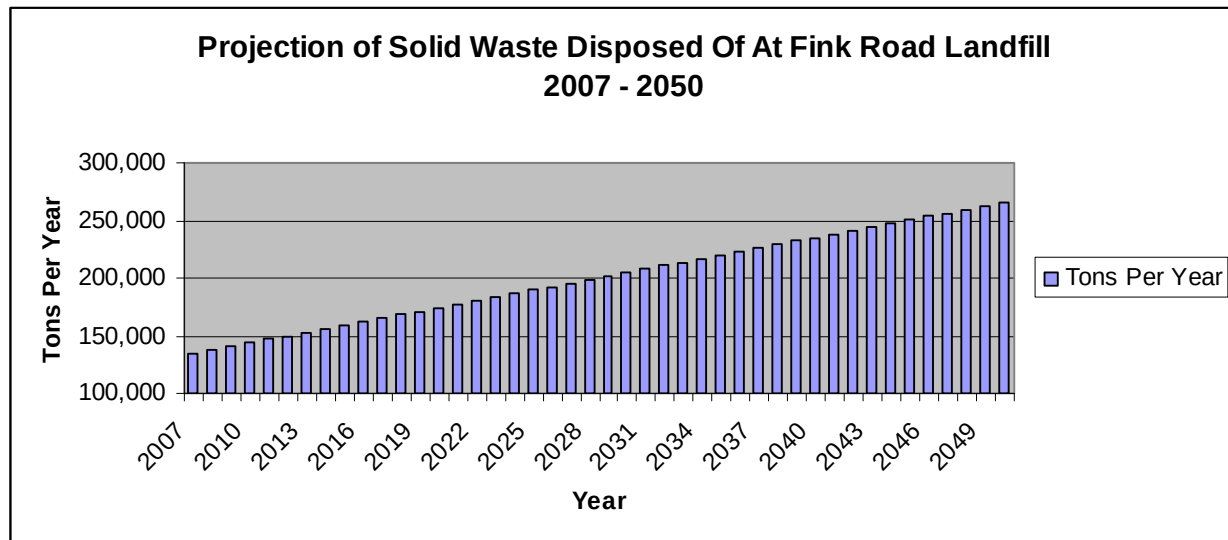
However, by applying these same assumptions, the capacity of the landfill would be reached around 2039. Therefore, cumulative impacts to landfill capacity associated with solid waste generated by development within the 40-year growth boundaries of each of the Equal-Weight Alternative are considered cumulatively considerable, and significant and unavoidable.

⁹ State of California, Department of Finance, California County Population Estimates and Components of Change by Year, July 1, 2000-2009. Sacramento, California, December 2009.

¹⁰ Stanislaus Council of Governments, December 2009

Table 5.3-18: Potential Increase In Projected 2030 County Population With Each Equal-Weight Alternative			
Source	Compact Development	Jobs Emphasis	PC Env Review Plan
2030 Population	46,360	47,831	64,389
StanCOG 2030 Projection for Patterson	39,067	39,067	39,067
Difference	+7,293	+8,764	+25,322
2030 StanCOG ¹ County Population Projection	791,332	791,332	791,332
Total:	798,625	800,096	816,654
Percent Increase Over StanCOG 2030 Projection	+0.91	+1.10	+3.10
Notes:			
1. Stanislaus Council of Governments, December 2009			

Figure 5.3-2: Projection of Cumulative Solid Waste Disposed of At Fink Road Landfill 2007 - 2050



Libraries

Setting

The Patterson branch of the Stanislaus County Library is located at 46 North Salado Avenue. It is one of 13 branches operated throughout the County. The library is open every day except Thursday and Sunday, and contains books, periodicals, videos and CDs, and government documents that are available for public checkout. Because the County's library branches are interconnected, it is possible to find documents in other libraries that may not be available at the Patterson branch. The library system also provides a variety of community services, including educational programs. The Patterson branch includes two meeting rooms that may be used for a variety of community activities. There is currently no charge to use these rooms. The library system has an active volunteer program that provides a variety of community services, generally to facilitate easy public access to the books and other information in the library.

The Stanislaus County library also operates a virtual library online, available at <http://www.stanislauslibrary.org>. This website has information about each branch, and a mechanism to allow for easy access to materials that may be available within the greater library system.

The Internet is another important source of information to citizens of Patterson. There are many commercial providers for online services within the community. Most major online service providers are available in Patterson, through a variety of retail outlets within the community.

Project Impacts and Mitigation Measures

Standards of Significance

A significant impact to public library facilities and services would occur if development accommodated by the Equal-Weight Alternatives would result in the demand for additional library facilities the construction of which would result in adverse physical changes to the environment..

Methodology

Evaluation of potential impacts was based information as it relates to the City's library and Internet access for the community.

Increased Demand for Library Facilities

Impact 5.3-8 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will accommodate additional residents and employees in Patterson which in turn will increase the demand for library services. This impact is considered less than significant.

The Patterson library is part of a 13-branch network that serves the people of Stanislaus County. The branch libraries are augmented by an extensive online library system. Future development associated with each of the Equal-Weight Alternatives will increase demand for public information, including information available within the library system. However, with the growth in the use and availability of the internet since the mid-1990s, access to information of all kinds has increased dramatically. Internet access is generally available for a nominal cost. For citizens without internet access, the library will

continue to provide such access and to check out books and other documents, and to augment information available to residents on line.

With the increase in population associated with each Equal-Weight Alternative, the demand for community services provided through the library system may also increase. While such impacts are not expected to be significant within the context of the thresholds described above, the City should continue to coordinate with the library system to ensure that adequate public meeting space is available. The City's recently-completed community center/senior center provides one such venue. At the same time, with increased population, there will be increased opportunities for volunteerism to assist the library system. Again, the City should continue to support the library's efforts to reach out to the public to encourage volunteerism to help the library continue to provide services to the community.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for library services:

PS-7.8 Library services. The City shall support the efforts of the Stanislaus County Public Library in providing services to the citizens of Patterson.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to the provision of library services. Therefore, from a programmatic perspective this impact is considered less than significant.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for library services includes the service area of the County library system, and specifically the Patterson branch of the system, as well the General Plan Study Area as it may be developed in accordance with the Equal-Weight Alternatives for both the 20-year and 40-year growth boundaries.

Cumulative Impacts and Mitigation Measures

Project specific impacts discussed above under impact 5.3-8 consider the impact to library services associated with the populations accommodated by each of the Equal-Weight Alternatives for the 20-year and 40-year growth boundaries. Accordingly, project impacts are considered cumulative for purposes of impacts to library services. Therefore, cumulative impacts to library services are considered **less than** cumulatively considerable.

Electricity and Natural Gas

Electrical Power

Patterson lies within the electrical service area of the Turlock Irrigation District. During the summer of 2001, California experienced significant energy shortages that resulted in numerous requests for energy conservation and “rolling blackouts” in central and northern California. The energy shortage, which is likely to continue for several more years, also resulted in dramatic increases in the cost of electricity to many consumers throughout the state. In addition, two of the state’s largest investor-owned utilities, Pacific Gas and Electric Company (PG&E) and Southern California Edison have failed to meet their financial obligations. In April of 2001, PG&E filed for voluntary protection under Chapter 11 of the federal Bankruptcy Code.

An agreement for the sale to the Turlock Irrigation District of PG&E’s distribution facilities in western Stanislaus County—including those serving the City of Patterson and surrounding area—was reached in 2001 and approved by both of the utilities, the California Public Utilities Commission, and other local, state and federal agencies, as well as the federal bankruptcy court. Electricity service is presently provided to the City and its sphere of influence by the Westside Power Authority, which is comprised of the Turlock Irrigation District and the Patterson Irrigation District. The Westside Power Authority service area consists of approximately 225 square miles, including the City and surrounding areas. The City anticipates that electric rates will decline upon the acquisition of the facilities by TID.

TID produces up to 708 megawatts of electricity from eleven power generating plants that include hydroelectric, gas, wind and solar powered generating stations. In 2008 the District sold about 3.2 million megawatt hours of electricity to customers, of which about 60 percent came from the District’s power plants and the remainder was purchased from electricity vendors.

Natural Gas

Natural gas is provided to the Study Area by Pacific Gas and Electric Company (PG&E). PG&E has adopted a similar strategy to the provision of natural gas as that applied for new electrical service by TID. That is, as areas with little or no natural gas service develop, transmission lines are constructed as needed to increase service capacity. Impacts associated with the extension of underground natural gas lines are comparable to those for the installation of underground electrical, water, and wastewater lines.

Telephone Service, Cable TV and Internet Providers

Evans Telephone Company provides telephone service to Patterson. In July 1988, Evans Telephone installed a new switching system as part of its expansion program for Patterson. The former switching station could serve a maximum of 3,500 access lines.

Global Valley Networks provides telephone and internet services to the communities of Patterson, Livingston, Guinda, San Antonio, Diablo Valley, Westley, Cressey, Grayson and Capay Valley.

NetVelocitē Inc. offers voice network (VoIP), related products and wireless broadband internet service for rural and remote communities. Presently NetVelocitē serves about 35 square miles in Stanislaus County, including Patterson.

Regulatory Setting

State Regulations

California Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations, known as the Building Energy Efficiency Standards, was 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. After adoption of the California Energy Security and Reliability Act of 2000 (AB 970), the California Energy Commission produced changes to the Building Energy Efficiency Standards. In November 2003 the California Energy Commission adopted these updated standards. The California Building Standards Commission adopted the 2005 changes in July 2003 and the updated standards took effect on October 1, 2005. Included in the update were requirements identified under Senate Bill 5X, part of which requires the California Energy Commission to adopt energy efficiency standards for outdoor lighting.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunication, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. It is the responsibility of the CPUC to assure California utility customers receive safe, reliable utility service at reasonable rates; protect utility customers from fraud; and promote a healthy California economy. The Public Utilities Code, adopted by the legislature, defines the jurisdiction of the CPUC.

Standards of Significance

State CEQA Guidelines Appendix G. states that a significant impact to utilities would occur if implementation of the proposed project:

1. Would result in substantial adverse physical impacts associated with the provision of new or physically altered facilities, the construction of which could cause significant environmental impacts for any public electrical or natural gas service providers or would result in inefficient, wasteful and unnecessary consumption of energy (based on State CEQA Guidelines Appendix F).

Project Impacts and Mitigation Measures

Methodology

Evaluation of potential impacts associated with electricity, natural gas, telephone and other services was based on consultation with the service providers, as well other relevant literature.

Increased Demand for Electricity and Natural Gas

Impact 5.3-9 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will increase the demand for electricity and natural gas. This impact is considered less than significant.

Electricity

The City is located in the Westside Zone that the Turlock Irrigation District (TID) purchased from Pacific Gas & Electric Company in 2003. TID has estimated that the City's 2009 electricity usage was between 165,000 to 170,000 megawatts (about 7.87 megawatts per capita) and has projected load growth of approximately 1.5 percent to 2.0 percent per year for the area¹¹.

Tables 5.3-19 and 5.3-20 compare future electricity demand in the City under each Equal-Weight Alternative with the growth rate assumed by the Turlock Irrigation District. It should be noted that Tables 5.3-19 and 5.3-20 assume that the per capita consumption of electricity remains constant in the future from 2009. In reality, compliance with newer efficiency requirements for electrical appliances as well as regulations intended to reduce the effects of climate change will likely result in a reduction in the future per capita consumption of electricity. Accordingly, Tables 5.3-19 and 5.3-20 present a conservative estimate.

**Table 5.3-19: Comparison of the Future Demand for Electricity
With The Growth Rate Assumed By the
Turlock Irrigation District For the Next 20-Years**

Alternative	20 Year Growth Boundary Population ¹	Estimate of Electricity Demand²	20 Year Electricity Demand Projection Projected By TID³	Difference
Compact Development	46,360	364,257	225,565	+138,693
Jobs Emphasis	47,831	375,815	225,565	+150,250
Planning Commission Env Review Alternative	64,389	505,914	225,565	+280,349
Notes 1. See Table 5.2-13 in Section 5.2-Population, Housing and Employment. 2. Based on 7.87 watts per capita. 3. Assumes an annual growth rate of 1.5%.				

¹¹ Personal communication from Mary Jo Talbot, Turlock Irrigation District, May 4, 2010.

Table 5.3-20: Comparison of the Future Demand for Electricity With The Growth Rate Assumed By the Turlock Irrigation District For the Next 40 Years

Alternative	40 year buildout Growth Boundary Population¹	Estimate of 40 year buildout Electricity Demand²	40 year buildout Electricity Demand Projection Projected By TID³	Difference
Compact Development	57,510	451,864 mw	303,803 mw	+148,062 mw
Jobs Emphasis	66,673	523,859 mw	303,803 mw	+220,057 mw
Planning Commission Env Review alternative	75,863	596,066 mw	303,803 mw	+292,264 mw

Source: Turlock Irrigation District, 2010

Notes

1. See Table 5.2-13 of section 5.2-Population, Housing and Employment.
2. In megawatts. Based on 7.87 megawatts per capita per year.
3. Assumes an annual growth rate of 1.5%.

Electricity Demand Associated With Water Treatment

The treatment of surface or groundwater associated with any of the Equal-Weight Alternatives would contribute to an increase in the demand for electricity. Although energy use would depend on the specific treatment technology used, typical treatment processes such as reverse osmosis use approximately 0.4 megawatt hours per acre-foot of water treated. The quantity of water treated for each Equal Weight Alternative varies considerably. However, the greatest amount would be associated with the Planning Commission Environmental Review Alternative in which as much as 11,200 AFY of water may be treated by 2050. Assuming 0.4 megawatt hours per acre-foot of water treated, the electricity demand associated with water treatment could be as much as 4,480 megawatt-hours by 2050.

Future Electricity Demand

As shown in Tables 5.3-19 and 5.3-20, the demand for electricity associated with each of the Equal-Weight Alternatives will greatly exceed the projected growth in demand projected by the TID. Nonetheless, TID does not anticipate any generation or capacity shortages in meeting the buildout demand of any of the Equal-Weight General Plan alternatives. According to TID, as growth occurs in areas that currently have little to no electrical facilities, TID will either upgrade existing lines or build new overhead or underground primary facilities as well as install service transformers and services. Adding capacity to existing substations will also be required in the form of new transformer banks or replacement of the existing banks with larger units. While TID does not have plans at the present time to build new transmission lines, it is likely that the increase in load would necessitate upgrading the existing lines serving the City and will not be limited to facilities in the Study Area. All electrical distribution lines, substations, transmission lines, delivery facilities, and easements required to serve the Study Area are subject to CEQA review. The future demand for electricity that exceeds the District's generating capacity will be satisfied by purchasing additional power on the open market.

The potential environmental effects of obtaining more power through the development of power plants include, but are not limited to, air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, waste management, water and soil resources, and health hazards. Potential environmental effects for the construction of

transmission lines include, but are not limited to, air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous materials, land use, noise and vibration (during construction), traffic, visual resources, and health hazards. The majority of the infrastructure for these services would be co-located and constructed concurrently with other utilities where feasible and be located within roadway and other public rights-of-way to lessen or eliminate potential environmental impacts.

Natural Gas

Natural gas is provided to the City by Pacific Gas and Electric Company. Assuming 422 therms per capita per year¹², the City's current (2010) natural gas consumption is about: 21,000 x 422 = 8,862,000. Future natural gas consumption associated with the Equal-Weight Alternatives for the 20-year and 40-year growth boundaries is summarized in Table 5.3-21. It should be noted that Table 5.3-21 assumes the per capita demand for natural gas will remain constant for the next 40 years. However, improvements to energy efficiency and regulations aimed at mitigating the effects of human-induced climate change will likely significantly reduce the per capita demand for natural gas.

Table 5.3-21: Comparison of the Future Demand for Natural gas

Alternative	20-Year Growth Boundary Population ¹	20-Year Demand ³ (therms)	40-Year Growth Boundary Population	40-Year Demand ³ (therms)
Compact Development	46,430	19,593,460	57,510	24,269,220
Jobs Emphasis	47,831	20,184,682	66,673	28,136,006
Planning Commission Env Review alternative	64,389	27,172,158	75,863	32,014,186

Source: CMCA and California Energy Commission, 2010

Notes

1. See Table 3.0-17 in section 3.0 Project Description.
2. A therm is a unit of heat measurement equal to 100,000 British Thermal Units (btu).
3. Assumes 422 therms per capita per year and that per capita demand remains constant.

As shown in Table 5.3-21, the demand for natural gas associated with each of the Equal-Weight Alternatives will increase significantly compared with 2010. Nonetheless, PG&E does not anticipate any capacity shortages in meeting the buildout demand of any of the Equal-Weight General Plan alternatives. Similar to the approach TID takes for providing electricity, as growth occurs in areas that currently have little to no natural gas distribution lines, PG&E will either upgrade existing lines or install new lines. All natural gas distribution lines, delivery facilities, and easements required to serve the Study Area are subject to CEQA review. The future demand for natural gas that exceeds PG&E's supplies will likely be satisfied by purchasing additional natural gas on the open market.

The potential environmental effects of expanding natural gas service include, but are not limited to, air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, waste management, water and soil resources, and health hazards. Potential environmental effects for the construction of natural gas transmission lines include,

¹² California Energy Commission, 2005

but are not limited to, air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous materials, land use, noise and vibration (during construction), traffic, visual resources, and health hazards.

Draft General Plan Policy Response

The draft General Plan provides the following policies that address the future demand for utilities:

Policies

- NR-6.1 Sustainable building practices.** The City will encourage the use of sustainable, energy efficient construction techniques. The City will identify and remove regulatory or procedural barriers to implementing green building practices, such as updating codes, guidelines, and zoning, and will ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques.
- NR-6.2 Passive solar.** The City will encourage passive solar design (passive heating and cooling) to avoid or minimize cooling needs through building orientation of all new development.
- NR-6.3 Renewable energy.** The City will allow renewable energy projects in areas zoned for open space, where consistent with all of the elements of this General Plan, and other uses and values.
- NR-6.4 Co-generation.** The City will promote and encourage co-generation projects for commercial and industrial facilities, provided they meet all applicable air quality standards and provide a net reduction in GHG emissions associated with energy production.
- NR-6.5 Renewable energy systems for City facilities.** The City will install renewable energy systems at its facilities where feasible, including solar collection systems at municipal properties and waste-to-energy (methane recovery) systems at the waste water treatment plant.
- AR-6.1 Energy efficient design.** The City shall work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.
- AR-6.2 Energy conservation standards.** The City shall cooperate with the local building industry, utilities and the District to promote enhanced energy conservation standards for new construction.
- AR-7.3 Sustainable government buildings.** All new or renovated City buildings shall be designed and constructed to achieve Leadership in Energy and Environmental Design (LEED) Silver rating requirements.
- AR-7.5 Passive solar heating.** To the extent feasible, the City shall require the orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain in warm seasons,

enhance natural ventilation and effective use of daylight, and to maximize opportunities for the installation of solar panels.

AR-7.6 Energy efficiency for low income residents. The City shall partner with community service agencies and organizations to fund energy efficient projects for low income residents. Eligible projects include but are not limited to the installation of heating, ventilation, and air-conditioning systems, lighting, water heating equipment, and insulation and weatherization.

AR-7.7 Waived permit fees. The City shall waive building permit fees for projects that make an existing home or business more energy-efficient. Eligible projects include but are not limited to the installation of solar panels, tankless water heaters, and highly energy-efficient heating, ventilation, and air-conditioning systems.

AR-7.8 Financing for energy-efficient improvements. The City shall investigate options for providing low-interest financing for energy efficient improvements and solar system installation for residents. Such financing could take the form of long-term assessments on individual property tax bills.

CD-1.8 Green building practices. The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of all private buildings and projects, including:

- Land planning and design techniques that preserve the natural environment and minimize disturbance of the land.
- Site development to reduce erosion, minimize paved surfaces and runoff and protect vegetation, especially trees.
- Water conservation indoors and outdoors.
- Energy efficiency in heating/cooling systems, appliances, lighting and the building envelope.
- Selection of materials based on recyclability, durability and the amount of energy used to create the material.
- Waste reduction, reuse and recycling during construction and throughout the life of the project.
- Other new aspects of green design and construction included in LEED™ or other certification programs.

Implementation Measures

NR-8 The City shall, within 24 months of adoption of the General Plan, prepare and adopt a comprehensive Climate Action Plan that includes but is not limited to the following components:

- Strategies for public involvement and input;
- A baseline inventory of greenhouse gas (GHG) emissions from all sources within the city;

- Goals for reducing manmade greenhouse gas (GHG) emissions from community, municipal, and business activities.
- Resiliency and adaptation programs to prepare for potential impacts of climate change, and provide a phased implementation plan to achieve these goals.
- A greenhouse gas emissions reduction target of 15% percent below 2007 levels by 2020, consistent with California Assembly Bill 32, the Global Warming Solutions Act of 2006 (AB32) and the guidance provided in the associated California Air Resources Board Climate
- Outline a strategy to achieve 1990 GHG levels by 2020 and an 80% reduction from 1990 GHG levels by 2050 in accordance with California State Executive Order S-3-05. A program of regular review of progress toward emissions reduction targets;
- A green building program that includes adoption of an ordinance which requires Build It Green certification for all new housing and LEED™ Silver certification for all non-residential buildings;
- A renewable energy portfolio standard of 33% for both investor-owned and publicly-owned utilities.

NR-9 The City will prepare and adopt a Sustainability Plan to guide efforts by the City to enact and promote sustainable practices by the City and the community.

NR-11 The City will conduct individualized Energy Audits of all City-owned facilities and implement cost-effective retrofits.

Additional Mitigation

The following additional policy is recommended for the land Use Element regarding the City's overall development strategy:

LU-1.16 Provision of public services. The City shall ensure that adequate public services are available concurrently or in advance of new development consistent with the policies and implementation measures of the General Plan. Such services include, but are not limited to, water supply; wastewater collection, treatment and disposal capacity; storm drainage and flood control; roadway and intersection capacity; electricity and natural gas; schools; health care; police and fire protection and solid waste disposal capacity.

Development under the any of the Equal-Weight Alternatives will be required to comply with recently Title 24 of the California Code of Regulations regarding energy efficiency that became effective in September 2005. These new energy efficiency standards were developed in response to the state's energy crisis as well as AB 970 and SB 5 in regard to improving residential and nonresidential building energy efficiency, minimizing impacts to peak energy usage periods, and reducing impacts on overall state energy needs. In addition, the policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to utilities. Therefore, this impact is considered **less than significant**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for impacts relating to electricity and natural gas encompasses the service areas of each service provider. This includes full buildout of the Study Area under the Equal-Weight Alternatives for both the 20-year and 40-year growth boundaries, as well as regional development identified in Section 4.0. The reader is referred to Section 5.7, Air Quality and Climate Change regarding energy use and climate change.

Cumulative Impacts

Cumulative Demand for Electrical, Natural Gas and Other Utilities

Impact 5.3-10 Implementation of the proposed General Plan Update, as well as potential development in the region, would result in cumulative utility service impacts. The contribution of demand associated with development within the 20-year and 40-year growth boundaries of the Equal-Weight Alternatives is considered less than cumulatively considerable.

As identified under Impact 4.12.7.1, neither the Turlock Irrigation District nor PG&E foresee any capacity shortages or problems in meeting the buildout demands associated with the Equal-Weight Alternatives¹³. While TID does not have plans at the present time to build new transmission lines to the City, it is likely that the increase in load would necessitate upgrading the existing lines in the area serving the City. All electrical distribution lines, substations, transmission, delivery facilities, and easements required to serve the Study Area are subject to CEQA review.

The potential environmental effects of obtaining more power through the development of power plants include, but are not limited to, air quality, biological resources, cultural resources (depending on location), hazardous materials, land use, noise and vibration, traffic, visual resources, waste management, water and soil resources, and health hazards. Potential environmental effects for the construction of transmission lines include, but are not limited to, air quality (during construction), biological resources (depending on location), cultural resources (depending on location), hazardous materials, land use, noise and vibration (during construction), traffic, visual resources, and health hazards. The majority of the infrastructure for these services would be collocated and constructed concurrently with other utilities where feasible and be located within roadway and other public rights-of-way to lessen or eliminate potential environmental impacts.

As discussed under impact 5.3-8, development under the any of the Equal-Weight Alternatives would be required to comply with recently adopted changes to Title 24 of the California Code of Regulations regarding energy efficiency.

While implementation of any of the Equal-Weight Alternatives would result in additional growth within the Study Area and require the expansion of these services, most of the underground and aerial electricity and telephone transmission lines are generally collocated with other utilities on poles or in underground trenches and are constructed in public and roadway rights-of-way to reduce visual and aesthetic impacts and potential safety hazards.

The environmental effects of the development of new utility infrastructure in the Study Area have been programmatically considered in this EIR as part of overall development (see Sections 5.1 through 5.15).

¹³ Mary Jo Talbot, Turlock Irrigation District, May 4, 2010

Draft General Plan Policy Response

The draft policies and implementation measures listed above for Project Impacts will mitigate cumulative impacts relating to energy demand associated with the Equal-Weight Alternatives. Cumulative impacts are considered less than cumulatively considerable.

Impacts Relating to the Construction of Public Facilities

Impact 5.3-11 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will require the construction of additional fire and police stations, parks, health care facilities, schools, and electricity, natural gas and communications lines. Construction of new and expanded public facilities could result in significant environmental impacts. This is considered a potentially significant impact.

Development accommodated by the Equal-Weight Alternatives will require the construction of the following additional public facilities:

- Depending on the alternative chosen, up to three additional stations would be needed (in addition to the station planned for The Villages of Patterson project) to provide better geographic coverage and improve response times (Kinnear, March 2010);
- Additional police substations;
- Up to 302 acres of additional parkland;
- School facilities to accommodate up to 21,248 additional school-aged children;
- Health care facilities;
- The installation of electrical, natural gas transmission lines and substations, and communications lines;

Potential impacts associated with construction-related activities include:

- Air quality and Climate Change: emission of pollutants and greenhouse gases associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources are discussed in Section 5.10.
- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use, Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.

- **Traffic:** construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- **Water quality:** earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- **Geology and Soils:** construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9- Geology and Soils.

Construction-related impacts would be temporary and localized. Utilities such as electricity, natural gas and communications lines would be co-located, constructed concurrently with other utilities where feasible and be located within roadway and other public rights-of-way to lessen or eliminate potential environmental impacts.

Construction times vary for different types of facilities. A typical duration for construction of a fire station is four months. Utility lines are constructed incrementally to minimize disruption of traffic.

Construction-related impacts associated with public facilities are considered **potentially significant**.

Mitigation Provided By Existing Regulations

Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Draft Policy Document Response

Policies

- AR-1.3 CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- AQ-1.4 Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AR-5.1 Particulates from grading.** The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

- NR-1.3 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.

Implementation Measures

- AR-1 Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.
- AR-2 Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.
- PS-6 New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City will require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing

maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Recommended Additional Mitigation

In addition, recommended mitigation AR-6 in section 5.7-Air Quality and Climate Change, and measure HS-10 in Section 5.10-Noise, require the following:

AR-6 The City will require all of the following as a condition of project approval:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track-out (earth material deposited on City streets by construction equipment) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activity when winds exceed 20 mph; and

- Limit area subject to excavation, grading, and other construction activity at any one time. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

HS-10 The City will require the following as a condition of project approval to mitigate the adverse noise effects of construction-related activities:

- Construction activities shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. on Saturday, with no construction on Sundays or federal and state holidays; minor construction equipment servicing and maintenance will be exempted from this restriction.
- During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
- Stationary noise sources and staging areas shall be located as far as is feasible from existing residences, or contractors shall be required to provide additional noise-reducing engine enclosures (with the goal of achieving approximately 10 dBA of reduction compared to uncontrolled engines).
- Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.
- If for construction purposes, locating stationary construction equipment near existing residential uses is required, an eight-foot-tall sound rated fence should be erected between the equipment and the sensitive receptor. The fence should be located as close to the equipment as is feasible.
- Construction vehicle access routes shall be designed to minimize the impact on existing residences and occupied hospital facilities.
- A "construction liaison" shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Occupants and property owners of residences within 400 feet of construction activity shall be notified in writing of the construction schedule and the contact information for the construction liaison.
- A qualified acoustical engineer should be retained during the construction phase of the project to determine if the noise levels generated from construction equipment at the project site to adjacent property lines are within the standards.

Lastly, continued compliance with relevant provisions of the Clean Water Act regarding the protection of surface and groundwater quality:

- Compliance with the City's Small MS4 General Permit Best Management Practices before, during and after construction; Such BMPs include:
 - Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
 - Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
 - Providing a central location for concrete washout and performing routine maintenance.
 - Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
 - Covering and/or containing stockpiled materials and overall good housekeeping on the site.

- For projects disturbing more than one acre of land during construction continuing to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. Under the provisions of the City's General Permit, a developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of public facilities. In addition, the construction of future public facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of new or expanded facilities. Nonetheless, the ability to mitigate certain potential impacts is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new public facilities and utilities that may be needed to serve the expanded service population remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

References

California Department of Education. 2008. Education Data Partnership: Fiscal, Demographic, and Performance Data on California's K-12 Schools. <http://www.eddata.k12.ca.us/welcome.asp> (accessed December 2009).

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Turnstone Consulting, Final Environmental Impact Report for The Villages of Patterson Project, August 2006

Persons Consulted

Bill Kinnear, Fire Chief, City of Patterson, March, 2010

Mary Jo Talbot, Turlock Irrigation District, May 4, 2010

5.4 WATER SUPPLY

Introduction

This section assesses the water supply impacts associated with each of the Equal-Weight Alternatives, as well as impacts associated with improvements to the source and delivery systems necessary to accommodate each alternative.

The analysis provided in this section is informed by a water supply study prepared for the General Plan and this EIR by The H2O Group which is provided in its entirety as Appendix 5.4.

Setting

The City of Patterson supplies potable water for residential, commercial, public and industrial uses within its service area, which includes the present City limits (see Figure 5.4-1). Water for agricultural use is provided to properties surrounding the City and within the Study area by irrigation districts that use surface and groundwater supplies. The City of Patterson does not use any surface water to supply to customers.

Climate and Precipitation

The climate in Patterson is characterized as dry-summer subtropical (Mediterranean), with cool, rainy winters, and relatively warm, dry summers. During the summer months weather in the San Joaquin Valley is influenced by a high pressure cell off the west coast. Within this cell, air descends almost continuously; the descending air is compressed, thereby raising its temperature and lowering the relative humidity. When this cell is dominant, there are neither major storms nor any region-wide precipitation. During the winter the influence of this high pressure cell is intermittent, resulting in alternate periods of stormy, unsettled weather and periods of stable, rainless conditions.

Based on historical weather data collected (from June 1902 to August 2009) by the Western Regional Climate Center¹ for the nearest weather monitoring station located in Newman, California (046168), the monthly averaged low temperatures occur typically between December and February. The monthly averaged-low-temperatures for December through February were approximately 35.6° F, 36.1° F, and 39.5° F, respectively. The monthly-averaged-high temperatures occur typically between June and August. The monthly-averaged-high temperatures for June through August were approximately 92.0° F, 97.2° F, and 95.0° F, respectively. The 30-year (1971 – 2000) monthly mean minimum temperatures for December through February were fairly consistent with those for the entire period of record at approximately 35.5° F, 37.0° F, and 40.0° F, respectively. The 30-year monthly mean maximum temperatures for June through August were slightly milder than those for the entire period of record at approximately 90.5° F, 94.6° F, and 92.6° F, respectively. The hottest day on record was 116° F on July 23, 2006. The coolest day on record was 15° F on December 23, 1990.

Rainfall typically occurs between the months of November and March, with some infrequent events as late as May and as early as September. Over the entire period of record, the average annual rainfall measured at the Newman station (046168) was about 10.63 inches per year. The maximum annual rainfall was approximately 22.56 inches in 1998, and the low was approximately 3.34 inches in 1953. The maximum 24-hour rainfall was measured at 4.10 inches and occurred on January 17, 1988. Snowfall has only been recorded at the Newman station once in 1916 when approximately 4 inches fell.

¹ WRCC, 2009

San Joaquin River

The primary source of natural surface water near the Study Area is the San Joaquin River (the River), which runs roughly south to north approximately four miles east of the City. The River is fed principally by snowmelt from the Sierra Nevada and return flows from users along its course; the River empties into the Sacramento-San Joaquin Delta (Delta) about 50 miles to the north.

Local Creeks

Salado Creek flows south to north across the City and empties into the River to the northeast of the City. Salado Creek is an intermittent stream, flowing for short periods during and after rainfall events, and drains a watershed of approximately 25 square miles. Between State Route 33 and the River, Salado Creek runs underground through 96-inch and 36-inch pipelines. Although seepage from the unlined portions of the creek enters the groundwater regime, the infrequency of its flows makes the creek a minor contributor to the local water supply.

Del Puerto Creek drains a watershed of approximately 73 square miles and travels west to east just north of the City and forms the northerly boundary of the Study Area. As with Salado Creek, Del Puerto Creek contributes to the area's water supply through an un-quantified volume of seepage entering the groundwater regime.

Due to the intermittent flow and low volume of water carried by Salado Creek and Del Puerto Creek, they are considered unsuitable as a source of water supply, but do contribute to groundwater recharge.

The Central Valley Project and the California Aqueduct

Adjacent to I-5 and running roughly parallel from north to south are the Delta Mendota Canal (DMC) and the California Aqueduct (Aqueduct). The DMC is part of the Central Valley Project (CVP) operated by the federal Bureau of Reclamation and supplies water from the Sacramento Delta to contractors (primarily agricultural) between Tracy and Mendota. The CVP is one of the world's largest water storage and transport systems. Its 22 reservoirs have a combined storage of 11 million acre-feet, of which 7 million acre-feet is delivered in an average year. CVP water irrigates more than 3 million acres of farmland and provides drinking water to nearly 2 million consumers. SWP deliveries are 70 percent urban and 30 percent agriculture, meeting the needs of 20 million Californians and more than 600,000 irrigated acres, respectively. The CVP has long-term contracts with more than 250 contractors in 29 out of 58 counties; 29 agencies have 50-year contracts with the SWP.

The California Aqueduct is part of the California State Water Project (SWP) and delivers water from the Delta to municipal and agricultural contractors as far south as Riverside County. Neither of these facilities contributes substantially to groundwater in the vicinity of Patterson, although some seepage into groundwater may occur there.

Water Purveyors Serving the Study Area

Four water purveyors provide water to portions of the Study Area: the City of Patterson, the Patterson Irrigation District (PID), West Stanislaus Irrigation District (WSID) and the Del Puerto Water District (DPWD). Currently, land located west of the California Aqueduct within the Study Area does not fall within the service area of any water provider and is irrigated with private wells. In addition, the service areas of two irrigation districts overlap with the water service area of the City: DPWD near Interstate 5, and PID in a large triangular parcel located at the northeast corner of Sperry Avenue and Ward Avenue. Figure 5.3-1 shows each district's boundaries in comparison with the Study Area boundaries. Table 5.4-1 provides a summary of the total acreage within the Study Area served by each water purveyor and the corresponding water allocations for these areas.

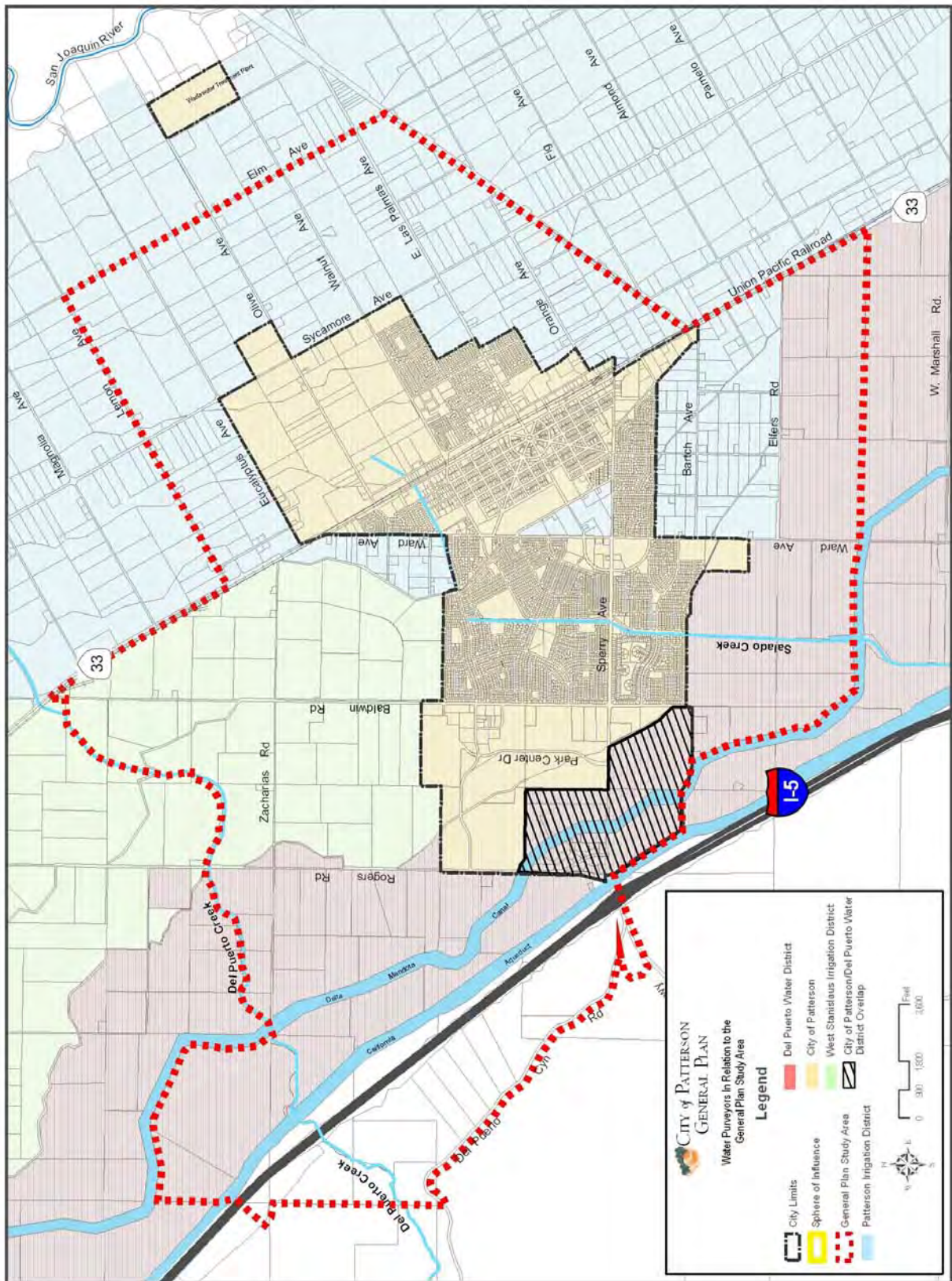
Table 5.4 -1: Water Purveyors Serving the General Plan Study Area, And Corresponding Acreage		
Water Purveyor	Acres Within the General Plan Study Area	Acre Feet of Water Supplies Allocated To These Areas ²
Del Puerto Water District	2,761	7,536
West Stanislaus Irrigation District	1,807	9,589
Patterson Irrigation District	3,195	15,975
City of Patterson	3,820	8,300
Areas Not Within A Water Service Area ¹	1,185	--
Total:	12,768	41,400
Source: Stanislaus Local Agency Formation Commission and CMCA, 2010		
Notes:		
1. Includes properties not within the service area of water purveyor as well as freeway right-of-way.		
2. See Table 5.4-7.		

City of Patterson

The City supplies potable groundwater for residential, industrial, and commercial uses through a combination of groundwater wells, storage tanks, and network of piping. Each water service is equipped with a water meter for accounting and billing. The City is responsible for operating and maintaining the water system up to the water meter. Water meters for residential services range from 5/8" to 1" in diameter. Commercial services are typically 1" or greater, depending on the type of use. The largest connection is 6" in diameter.

Municipal and industrial water use includes metered and un-metered connections, although very few connections are not metered. All new connections made to the water system are required to be metered. The City does not separately track different types of water use sectors (e.g. residential, commercial, industrial, landscaping, etc.), so projections of future demands are based on per capita use. These values account for commercial, industrial, common property landscaping (e.g. parks), construction water, and unaccounted for losses.

Figure 5.4-1: Water Purveyors Serving the Study Area



Historical water demand expressed in terms of groundwater production and deliveries to customers is summarized in Table 5.4-2. The City operates nine (9) wells with a total capacity of 9,600 gallons per minute, with a projected production of about 7,500 AFY. The wells currently (2010) produce a combined 5,000 AFY². However, as discussed above, the local groundwater basin has production limitations, and for purposes of water supply planning it is estimated that an average of 8,300 acre feet/year of groundwater is available for City use³. Although previous studies have indicated as much as 11,500 acre-feet/year is readily available from natural recharge⁴, due to competing users of local groundwater, additional groundwater use by the City beyond its projected production capacity of 7,500 acre feet/year may require artificial recharge of supplementary sources through spreading basins or direct injection.

Table 5.4-2: Historical Groundwater Production,
City of Patterson 2005 to 2009
(acre-feet per year)

Year	2005	2006	2007	2008	2009
Total Groundwater Production	3,502	3,750	3,272	4,401	3,836

Del Puerto Water District (DPWD)

Del Puerto Water District (DPWD) was formed in 1947, and is located on the west side of the City generally west of Rogers Road and east of the California Aqueduct. In 1995, the district reorganized and consolidated with ten other districts, increasing its size to approximately 47,400 acres. The district area is about 50 miles long, but is relatively narrow since it stays within 2 miles of the DMC footprint. The district boundaries span Stanislaus, San Joaquin, and Merced Counties. DPWD is governed by property owners within the district.

The district receives CVP water directly through turnouts on the Delta-Mendota Canal. DPWD does not have any distribution facilities and does not own any pumps, pipelines, or canals to transport the CVP supply. All turnouts, pumps, pipelines, and canals in the district are privately owned, maintained, and operated. The DPWD recently received a federal grant to install 20 wells within their service area to augment surface water supplies. They are also working on an agreement with the city of Modesto for the use of recycled water.

In 1953, DPWD signed a long-term contract⁵ with the Bureau of Reclamation for 10,000 acre-feet of CVP water. After the 1995 consolidation, the water service contracts of the other ten districts were assigned to Del Puerto Water District and were renegotiated as a single contract, bringing its total CVP service contract entitlements to 140,210 acre-feet. DPWD water can be used for irrigation or municipal and industrial (M&I) uses, however, only 20 acre-feet are classified at M&I⁶. A long-term renewal contract was executed on February 25, 2005, and is in effect for 25 years.

² The H2O Group 2010, page 3-6.

³ Net long-term use of 8,300 ac-ft/yr based on current use, development of groundwater pumping facilities, and previous groundwater studies. Groundwater use may vary year-to-year based on water year type, surface water availability, etc.

⁴ Groundwater Pump Tests conducted 2006, Ken Schmidt & Associates, Groundwater Consultants, Fresno, Ca. H2O Group

⁵ Contract 14-06-200-922

⁶ Per discussions of 1/30/06 with William Harrison, General Manager, DPWD.

As shown in Table 5.4-1, approximately 2,761 acres of land within the Study Area lies within the DPWD.

Patterson Irrigation District (PID)

The Patterson Irrigation District (PID) consists of approximately 13,500 acres, that borders the City to the east. The district was formed in 1955 originally as the Patterson Water District, but later changed its name. PID has 425 landowners, and over 600 water users. PID maintains several miles of lined and unlined canals, pumps, and small storage basins for distribution of water to its users.

PID relies on multiple sources of water to serve its customers:

- Central Valley Project water from the Delta Mendota Canal
- Groundwater
- Pre-1914 water rights to the San Joaquin River, and
- A drainage reclamation and groundwater recharge program.

PID has an agreement with the Bureau of Reclamation for 6,000 acre-feet of exchange, or replacement water. In 1967, PID entered into a long-term contract with the Bureau for 16,500 acre-feet of Central Valley Project water⁷. According to the Bureau, 1,000 acre-feet of this water is classified as M&I water⁸. A long-term renewal contract⁹ was executed on March 9, 2005, and is in effect for 25 years.

Due to multiple water rights, PID has a reliable water supply program capable of meeting most or all demands under all water year scenarios. As shown on Table 5.4-1, about 3,195 acres of the Study Area fall within the PID service area.

The District is governed by voters residing within the district boundary. In 1999 the PID switched from a being a water district to an irrigation district to enable the District to provide electrical power to customers and to extend the delivery of water outside district boundaries.

West Stanislaus Irrigation District (WSID)

West Stanislaus Irrigation District (WSID) is located north of the City between the boundaries of the Patterson Irrigation District and the Del Puerto Water District. WSID was formed in 1920, with the first water deliveries made in 1929. The current size of the district is 24,800 acres, but only a portion (19,700 acres) is irrigated. WSID has a distribution system of lined canals and laterals to distribute water. The main canal carries water supplied by six pumping plants.

WSID relies on multiple sources of water that include:

- Central Valley Project water from the Delta Mendota Canal;
- Groundwater; and
- State rights to water from the San Joaquin River.

In 1953, WSID signed a long-term contract with the Bureau of Reclamation for 20,000 acre-feet of CVP service contract water¹⁰. The contract amount was increased to 50,000 acre-feet in 1976. The contract has no provisions for M&I use. The contract expired in 1994, but a series of interim renewal contracts have

⁷ Contract 14-06-200-3598A, executed 12/18/67.

⁸ Based on classification of water prior to release of the BOR 1995 draft "M&I Water Shortage Policy", thereby subject to lesser reductions during dry periods as compared to irrigation water.

⁹ Contract No. 14-06-200-3598A-LTR1

¹⁰ Contract 14-06-200-1072

been executed since that time. A long-term renewal contract¹¹ was executed on February 25, 2005, and is in effect for 25 years.

About 1,807 acres of land within the Study Area falls within the service area of the WSID, as shown on Table 5.4-1. As with the PID, WSID is governed by registered voters within the district.

Existing City Water Supplies

The City of Patterson has historically satisfied all of its demand for water from the underlying groundwater basin. The City lies within the Delta-Mendota Groundwater Subbasin (“the Subbasin”), as defined by the California Department of Water Resources (DWR)¹². The Basin covers about 747,000 acres extending along the western side of the San Joaquin Valley between the San Joaquin River and the western edge of the Valley alluvium, from the Stanislaus/San Joaquin County line through Stanislaus and Merced Counties into Fresno County to the boundary of the Westlands Water District south of the City of Firebaugh. A regional Groundwater Management Plan prepared by the San Luis and Delta Mendota Water Authority (SLDMWA) identified three sub-basins – a Northern Sub-basin, a Central Sub-basin, and a Southern Sub-basin¹³. As shown in Figure 5.4-2, the City of Patterson is located in the Northern Sub-basin.

In the vicinity of the City, groundwater is found in a shallow unconfined aquifer and a deeper confined aquifer, hydraulically separated by a thick layer of fine-textured soils known as Corcoran Clay. The depth from the surface to the bottom of the Corcoran Clay layer varies from approximately 100 feet west of the City near I-5 to 350 feet east of the City¹⁴. The confined aquifer lying below that depth is the primary source of the City’s water supply, as discussed further below. The shallow aquifer supplies groundwater to some existing agricultural water users as well as for various domestic wells. A substantial component of the recharge to the shallow aquifer is believed to be percolation from applied irrigation water. The confined aquifer is recharged primarily by lateral inflow from the south and southeast.

In 1995 the San Luis and Delta-Mendota Water Authority (SLDMWA) prepared a regional groundwater management plan (GMP) to assess the condition of the Delta-Mendota Groundwater Sub-Basin. Although the City of Patterson was not a participant in the plan, it included detailed information about the Northern Sub-Basin that underlies the City¹⁵. The GMP analyzed the sustainable yield of the sub-basin based on basin-wide groundwater pumping during an eight-year study period, and accounted for impacts to the groundwater basin associated with the export of water through the Delta-Mendota Canal. Based on this analysis, the GMP found that the northern portion of the sub-basin was in a hydrologically balanced condition during the 8-year study period, meaning that withdrawals from the basin are roughly balanced with the amount of water being recharged. The GMP projected that under normal rainfall conditions there would be a net annual increase in water storage of about 35,000 acre-feet¹⁶. The outflow from the groundwater basin to the San Joaquin River varied annually between about 73,000 AF per year to 185,000 AF per year. This suggests that an increase in pumping of more than 35,000 AF per year could occur without causing an overdraft condition.

¹¹ Contract No. 14-06-200-1072-LTR1

¹² California Department of Water Resources, Bulletin 118, San Joaquin Valley Groundwater Basin Delta-Mendota Subbasin, updated 1/20/06.

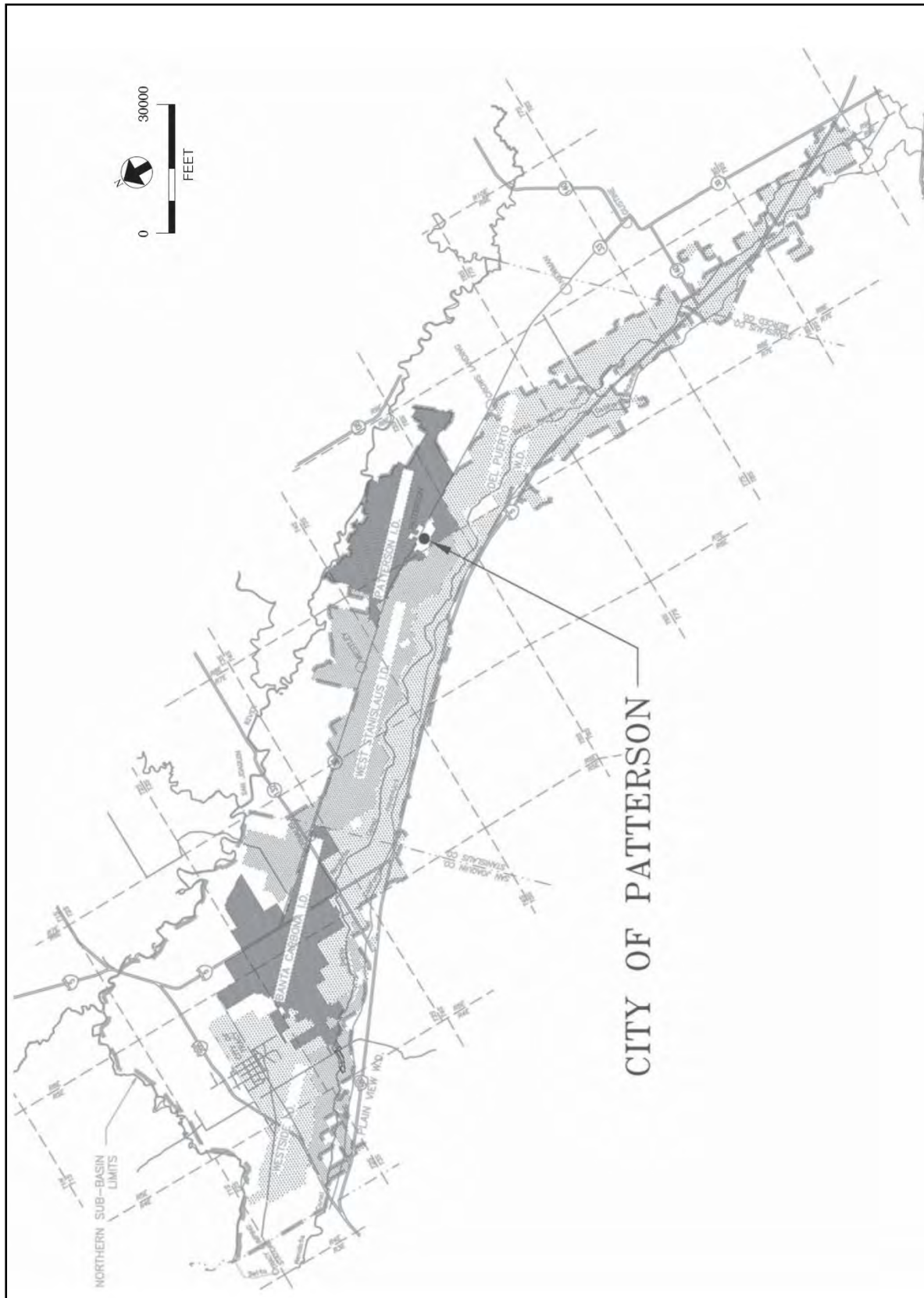
¹³ City of Patterson, 2000 Urban Water Management Plan, 2002, p. 14

¹⁴ City of Patterson, Final Environmental Impact Report for West Patterson Projects, 2003, p. III.I.11

¹⁵ H2O Group WSA, July 2006, p. 9.

¹⁶ One acre-foot is equal to 325,851 gallons.

Figure 5.4-2: Sub-Basins of the Delta Mendota Groundwater Basin



Recent studies have confirmed that groundwater in the vicinity of the City is not overdrafted¹⁷. In 2002 the City undertook a study of the groundwater basin in the vicinity of the City as part of the City's 2002 Urban Water Management Plan¹⁸. That study revealed a total of at least 80,000 AF of water in the aquifer underlying the City and that 30,000 to 50,000 AF of this water was estimated to be of suitable water quality for municipal and industrial uses. The 2002 study estimated annual recharge to be about 9,300 AF to both aquifers (the confined aquifer and the shallow aquifer), not including seepage from irrigation and Salado and Del Puerto Creeks.

In 2006, to better understand the sustainability of groundwater for future planning, a 6-day aquifer test was conducted¹⁹. The test showed that recharge is substantially higher than previously estimated, approximately 11,500 AF per year (8,300 AF to the confined aquifer²⁰ and 3,200 AF to the shallow aquifer²¹). This suggests that the total sustainable production from the lower aquifer alone could be as high as 8,000 AF per year. The test also showed that:

- No significant downward leakage occurs between the upper and lower aquifers.
- Groundwater flow is in a northwesterly direction, as opposed to a northeasterly direction as previously suspected.

This updated information indicates that the safe yield of the lower aquifer is somewhat higher than shown in previous studies. The study also suggests that recharge of the lower aquifer is from the southeast, which could be beneficial for recharge and water quality. And lastly, minimal leakage between the upper and lower aquifers suggests that the City could pump more water from the lower aquifer without impacting private, shallow wells. Table 5.4-3 summarizes key attributes of the groundwater basin underlying the City.

Table 5.4-3: Key Attributes of the Northern Sub-Basin of the Delta Mendota Groundwater Basin	
Attribute	Quantity (acre-feet)
Groundwater Underlying the City	About 80,000
Amount Estimated to Meet Safe Drinking Water Standards	30,000 – 50,000
Safe Yield/Annual Recharge to the Confined (lower) Aquifer	8,300
Safe Yield/Annual Recharge to the Shallow (upper) Aquifer	3,200
Total Safe Yield/Annual Recharge (upper and lower aquifers combined):	11,500
Sources: City of Patterson, 2002 Urban Water Management Plan, page 14 and Appendix D Kenneth Schmidt and Associates, Groundwater Hydrology Test Report, prepared for The H2O Group, April 4, 2006, Appendix C to the City of Patterson Water Supply Planning Study, Final Draft, April 2006. City of Patterson, 2000 Urban Water Management Plan, Appendix D, pp. 8 and 11.	

¹⁷ These studies are discussed in Appendix D to the 2000 Urban Water Management Plan

¹⁸ City of Patterson, 2000 Urban Water Management Plan, 2002, p. 14.

¹⁹ H2O Group, WSA, July 2006, p. 11.

²⁰ Kenneth Schmidt and Associates, Groundwater Hydrology Test Report, prepared for The H2O Group, April 4, 2006, Appendix C to the City of Patterson Water Supply Planning Study, Final Draft, April 2006.

²¹ City of Patterson, 2000 Urban Water Management Plan, Appendix D, pp. 8 and 11.

Reliability

Water levels and well capacity in the area have not changed significantly over time, according to City records and groundwater production has increased as the City's population has grown. Although the City continues to add wells to satisfy increasing demand, the local groundwater table appears to remain stable²². Moreover, the City has not seen measurable changes in the groundwater table or yield due to periods of low rainfall. Studies of the local groundwater supply have indicated that low rainfall will not adversely impact groundwater levels, yields, or quality²³. Nevertheless, the City, along with other jurisdictions, has adopted a Drought Contingency Plan in the event that an extended drought impacts the local groundwater supply. The contingency plan would be implemented by the City Council in three stages: Stage 1, with voluntary rationing; Stage 2, with mandatory rationing intended to reduce water use by 20 percent; and Stage 3, with mandatory rationing and limited water allocations to some users²⁴.

However, based on previous studies, the reliability of the City's groundwater (upper and lower aquifers) to produce 8,300 AFY is assumed to be 100 percent.

Present and Future Water Demand

Water use in the State of California varies depending on location. Areas where the climate is warmer and have less rainfall use more water than colder, wetter locations. For example, households in the Bay Area and San Diego use less water than those in Sacramento and Bakersfield. Due to the climate of the Study Area (hot and dry), the City would be expected to have higher demands similar to other communities in the Central Valley. However, pumping records indicate that the City's household use is much lower than the statewide average of 244 gallons per capita per day (gpcd)²⁵. Table 5.4-4 provides a projection of future population and corresponding water demand through the year 2030. It should be noted, however, that these projections do not account for the population and non-residential development that may be accommodated by any of the Equal-Weight Alternatives, but are based on buildout of the City's currently-adopted General Plan. Table 5.4-4 suggests that future water demand associated with the 1992 General Plan would be about 8,100 AFY.

There are three main water use values that must be considered when planning and designing water supply programs. These include annual demand, maximum day demand, and peak hour demand, as described below:

Annual Demand – The total amount of water a community uses during the year. This value determines the water needed from source supplies, such as groundwater and/or surface water. Communities must plan to secure long-term water availability based on annual demand projections.

Maximum Day Demand – The highest amount of water used in one 24-hour period. This value determines the capacity of water treatment facilities. Although this condition may only occur a few days each year, communities should plan to size treatment facilities (and storage) to meet maximum day conditions assuming an unscheduled maintenance event removes a portion of the treatment capacity from service.

²² H2O Group, WSA, July 2006, p. 11.

²³ H2O Group, WSA, July 2006, p. 5, citing studies by Kenneth Schmidt & Associates in 2002 and 2006.

²⁴ H2O Group, WSA, July 2006, p. 22

²⁵ Based on total system pumping and includes commercial, industrial, and public uses. Household use of Fresno and Bakersfield range between 250 gpcd and 350 gpcd (DWR, Bulletin 160-98).

Peak Hour Demand – The highest amount of water the system will move at any given moment. This value determines the storage and pipe (distribution) capacity of the system²⁶. This condition is assumed to last for approximately 4 hours during a maximum day demand.

Table 5.4-4: Past and Projected Future Population and Associated Water Demands
Assumed By The City's 2006 Urban Water Management Plan

	2005	2010	2015	2020	2025	2030
Population	16,150	21,000	25,500	30,000	34,000	35,600
Demand (AF) ¹	3,250	4,704	5,712	6,720	7,616	8,176

Source: 2006 Urban Water Management Plan, Table 3-6, page 34

Notes:

1. Based on a demand factor of 200 gpcd x 1.15 for factor of safety.

Water Demand Factors

For purposes of estimating future water demand, water demand factors are applied to the estimated acreage of future development. The 2006 Urban Water Management Plan applies a water demand factor based on population of 230 gallons per day per capita. For purposes of estimating future water demand associated with each of the Equal-Weight Alternatives, water demand factors were derived for each General Plan land use category by examining existing water demand for various land use types and by examining water demand factors used by other jurisdictions in the area. The recommended water demand factors are provided in Table 5.4-5. It should be noted that these water demand factors do not account for conservation measures that will reduce overall water demand.

²⁶ Emergency flow conditions (e.g. fire demands) are also taken into account when designing these facilities.

Table 5.4-5: Water Demand Factors By Land Use Category
(acre-feet per gross acre of development)

General Plan Land Use Category	Water Demand Factor		
	Annual Demand	Potable	Non-Potable
Mixed-Use Hillside Development	2.75	1.06	1.69
Neighborhood Village	2.25	0.87	1.38
Estate Residential	1.25	0.48	0.77
Low Density Residential	3.12	1.21	1.92
Medium Density Residential	3.04	1.17	1.86
High Density Residential	5.16	1.93	3.23
Downtown Residential	2.50	1.07	1.43
Downtown Core	2.40	1.25	1.15
Regional Commercial	2.40	1.25	1.15
General Commercial	1.96	0.85	1.11
Highway Service Commercial	2.66	1.32	1.34
Neighborhood Commercial	1.97	0.86	1.11
Medical Professional Office	2.00	0.87	1.13
Light Industrial	1.70	0.41	1.30
Heavy Industrial	2.47	0.88	1.58
Public/Quasi-Public	2.59	1.00	1.59
Parks and Recreation	3.77	0.57	3.20
Open Space	--	--	--
Agriculture	--	--	--

Source: The H2O Group, 2010, Table 2-4

Notes:

1. Assumes 15% of total water use of a park and recreational facility will be potable water use (drinking fountains and bathrooms).
2. Water demand factor for Neighborhood Village is based on the weighted average of demand factors for the constituent land uses (See policy LU-1.3 of the Draft Policy Document).

Water Quality

Groundwater Quality

In general, local groundwater has high alkalinity, hardness, and total dissolved solids (TDS) concentrations. The TDS levels range from 450 to 1,110 mg/L. A large component of TDS is represented by the sum of calcium, sulfate and chloride concentrations. The City has a goal of 400 mg/L TDS and/or 150 mg/l hardness, based on an objective to reduce salts so that the community does not need private self-generating softening units. The salt reduction goal was set below the state's recommended maximum contaminant level (MCL) of 500 mg/l to enhance both drinking water quality and wastewater disposal. Controlling salts will also reduce maintenance of the City's distribution system, and increase the longevity of water infrastructure. Sulfate levels are also important factors in considering treatment processes for other contaminants. For example, ion exchange processes for arsenic and nitrate control are impacted by the presence of high sulfate levels.

Based on past sampling, a summary of groundwater constituents of concern is described as follows:

- Antimony has been detected in Well 6 at 2 µg/l and in Wells 7, 8, 9, and 11 at 5 ug/l. The water quality goal for antimony is 4.8 ug/l, and therefore the groundwater could require treatment for antimony removal.
- Arsenic levels in the groundwater range from 1.2 ug/l in Well 6 to 10 ug/l in Well 2. While the majority of samples have arsenic in the range of 3 ug/l to 4 ug/l, the 90th percentile level has been estimated at 8.4 ug/l.
- Iron levels range from 0.02 mg/L in Well 11 to 0.3 mg/L in Well 1. The 90th percentile level is estimated at 0.24 mg/L, which is equal to the goal (e.g., the secondary MCL). While the 90th percentile level for manganese is 0.038 mg/L, one of two Well 6 samples showed a level of 0.09 mg/L. The treatment objective for manganese, based on the secondary MCL, is 0.04 mg/L.
- Nitrate levels range from 2 mg/L in Well 6 to 48 mg/L in Well 7, and varies considerably among the different wells. The 90th percentile value of 48 mg/L is higher than the treatment level objective of 36 mg/L (as NO₃).

Table 5.4-6: Groundwater Quality Summary

Parameter	Unit	Samples	Min	Max	Ave	90th Percentile	Water Quality Goal
Alkalinity	mg/L	16	0	260	141.9	196	no goal
Alpha Particles	pCi/L	14	0.0	5.4	2.6	4.7	12
Aluminum	ug/L	14	11	1600	169	230	800
Antimony	ug/L	14	2	5	4.6	5	4.8
Arsenic	ug/L	16	1.2	10	4.0	8.4	8
Barium	mg/L	16	0.014	0.5	0.1	0.33	1.6
Bentazon	ug/L	1	5.0	5.0	5.0	5.0	14
Beryllium	ug/L	14	0.3	1	0.5	0.5	3.2
Cadmium	mg/L	16	0.00018	0.001	0.0009	0.001	0.004
Calcium	mg/L	16	52	110	74.3	90.2	150 (as total hardness)
Chloride	mg/L	17	24	280	124	211	250
Chromium VI	ug/L	7	3.7	17.2	9.3	14.5	40
Color	units	16	0	5	3.1	4.2	15
Conductivity	umho/cm	21	710	1600	1294	1600	no goal
Copper	ug/L	16	0.05	30	13.9	20	1
Cyanide	ug/L	7	0.2	0.5	0.3	0.5	0.12
Fluoride	mg/L	16	0.1	0.77	0.2	0.6	2
Hardness	mg/L	16	270	490	392.3	476	150
Iron	mg/L	16	0.02	0.3	0.1	0.24	0.3
Lead	mg/L	16	0.001	0.005	0.004	0.005	0.015
Magnesium	mg/L	16	31	64	50.3	63	150 (as hardness)
Manganese	mg/L	16	0.010	0.090	0.021	0.038	0.5
Mercury	mg/L	16	0.000	0.001	0.000	0.001	0.0016
Methane	ug/L	1	1.0	1.0	1.0	1.0	no goal
Metolachlor	ug/L	1	0.6	0.6	0.6		no goal
MTBE	ug/L	2	3.0	5.0	4.0	4.8	5
Nickel	ug/L	14	5	5	5	5	80
Nitrate	mg/L(NO3)	22	2	48	20.8	48	40
Nitrite	ug/L	10	100	100	100	100	400
Odor	TON	16	1	1	1.0	1	15
o-propane	ug/L	1	0.5	0.5	0.5	0.5	
pH	units	16	7.5	8	7.8	7.9	6.5-9.5
Selenium	mg/L	17	0.001	0.006	0.005	0.006	0.04
Silver	mg/L	16	0.0004	0.005	0.002	0.005	0.1
Sodium	mg/L	16	22	160	108.3	150	250
Sulfate	mg/L	16	170	560	302	488	250
TDS	mg/L	22	450	1100	854.3	1000	400
Thallium	ug/L	13	1	2	1.9	2	0.0016
Toluene	ug/L	4	0.5	1.7	0.9	1.4	120
Total Chromium	mg/L	16	0.006	0.026	0.01	0.021	0.040
Turbidity	NTU	16	0.1	9.4	1.7	2.8	no goal
Zinc	mg/L	16	0.01	0.81	0.29	0.62	5

Source: The H2O Group, 2010

Units

mg/L = milligrams per liter

ug/L = micrograms per liter

mg/L(N) = milligrams per liter nitrogen

pCi/L = picocuries per liter

umho/c = micromhos per centimeter

TON = threshold odor number

Surface Water Quality

As discussed previously, surface water is currently delivered to properties within the Study Area. Surface water could be obtained by the City from either the California Aqueduct (CA), part of the State Water Project (SWP), operated by the State of California, or from the Delta-Mendota Canal (DMC), part of the Central Valley Project (CVP), operated by the United States Bureau of Reclamation. Both of these sources receive their water from the Sacramento-San Joaquin Delta (Delta). As shown in Figure 5.4-2, the Sacramento, San Joaquin and Mokelumne Rivers combine in the Delta which supplies potable and agricultural water for areas south of the Delta. Water is pumped into the canal systems by the Tracy Pumping Plant (CVP) and the Banks Pumping Plant (SWP).

There are several sources of Delta water contamination. Recreational activities in the Delta include motor vehicle sports, like boating, water skiing, and other water craft activities. These activities can introduce gasoline related contaminants such as methyl-tert-butyl ether (MTBE) into Delta waters. Effluents from wastewater treatment facilities (approximately 23 major facilities in the Delta basin) have the potential to add organic and microbial contaminants. Runoff from farmlands also adds sediments, nutrients, organic contaminants and microbes to the Delta source water. Similarly, urban runoff can add sediment, nutrients, road salts, heavy metals, petroleum hydrocarbons, and microbes. Seawater intrusion can also increase salinity, bromide, and total dissolved solids content of Delta water.

The design and operation of the DMC allows for surface water runoff and agricultural return water to enter the canal. In the section between the Tracy Pumping Plant and where the City would take water (Mile Post 40), there are approximately 87 locations where surface water can enter the canal, and one (1) location where agricultural return water can be pumped into the canal. A number of dairy and agricultural operations (e.g., confined animal feeding operations) discharge into the DMC downstream of the Tracy Pumping Station, potentially contributing to further degradation of source water quality. As a result, the California Department of Health Services has stated that DMC water is not a viable option for drinking water, regardless of the treatment provided. Thus, for water supply planning purposes any surface water that is directly treated and delivered to customers for drinking water must be diverted from the California Aqueduct, not the DMC.

The City performed water quality sampling of the CA and DMC as part of the groundwater study prepared in 2006²⁷. Both CA and DMC source waters consist of low turbidity, higher than neutral pH, relatively high TDS, and moderate hardness. These source waters are also expected to contain low level organic contaminants, representative of watershed activities such as recreation, agriculture, treated effluents from wastewater treatment plants, urban runoff, and confined animal feeding operations. These discharges may also contribute to microbial contamination. Due to a large number of agricultural returns to the DMC, a higher incidence of agricultural chemicals and microbes can be expected. While not identified in these DWR databases, SWP also contains taste and odor causing chemicals. The major issue with both surface waters is the potential for drinking water disinfection by-product (DBP) formation due to high precursor levels (both organic and inorganic). The observed TDS levels in the DMC appear to be higher than in the CA, but the 75th percentile levels are below the primary goal of 400 mg/L.

²⁷ H2O Group, WSA, July 2006,

While the analyzed data represents general water quality in the CA and the DMC, limited data are available from points in both sources near the possible locations being considered for raw water intakes for a future City of Patterson treatment plant. Therefore, the location of raw water intakes will be determined by a sampling program for a period of one year to compare the water quality between the two sources, and at points where surface water intakes would be located along each source. The water quality parameters recommended for monthly monitoring include alkalinity, pH, hardness, bromide, dissolved organic carbon, UV absorbance at 254 nanometers (nm), iron, manganese, nitrate, total dissolved solids, turbidity, total and fecal coliform, and E. coli. In addition, complete scans of all organic and inorganic contaminants with primary MCLs, secondary MCLs, and notification levels are recommended once per quarter over one year. Analysis of taste and odor causing contaminants, such as geosmin and MIB, is also recommended on a quarterly basis. Asbestos was observed in DMC source water and its occurrence in CA and DMC source water must be confirmed with additional samples.

Table 5.4-7: Water Quality of the California Aqueduct and the Delta Mendota Canal near Patterson

Water Quality Parameter	Unit	Cal. Aqueduct Banks Pump Station	Delta Mendota Canal	Cal Aqueduct Patterson	Water Quality Goal
Alkalinity	mg/L as CaCO ₃	70	105	65	none
Antimony	mg/L	<0.001	<0.001	ND	0.048
Arsenic	mg/L	0.002	0.002	0.002	0.008
Beryllium	mg/L	<0.001	<0.001		0.0032
Boron	mg/L	0.1	0.3		no goal
Bromide	mg/L	0.3	0.29	0.36	0.08 (as bromate)
Calcium	mg/L	17	31	17	150 as total hardness
Dissolved Organic Carbon	mg/L as C	2.3	3	2.3	1.5
Total Organic Carbon	mg/L as C	2.8	3.6	2.9	1.5
Chloride	mg/L	91	93		250
Chromium	mg/L	0.003	0.003		0.04
Copper	mg/L	0.002	0.002		1.0
Fluoride	mg/L	<0.1	<0.1	ND	2
Hardness	mg/L as CaCO ₃	92	143	100	150
Iron	mg/L	0.022	0.007		0.3
Lead	mg/L	<0.001	<0.001		0.012
Magnesium	mg/L	12	16	14	150 (as total hardness)
Manganese	mg/L	0.01	<0.005		0.05
Nitrite + Nitrate	mg/L as N	0.58	NR	0.7	8
Phosphate-Ortho	mg/L as P	0.04	NR		0.3
Phosphorus-Total	mg/L	0.08	NR		0.3
Selenium	mg/L	0.001	0.002		0.04
Sodium	mg/L	59	72		150
Specific Conductance	mS/cm	490	670		no goal
Sulfate	mg/L	26	74	31	250
SUVA	mL/mg			3.83	no goal
Total Dissolved Solids	mg/L	270	371	310	400
Turbidity	N.T.U.	6	15		0.24
UV Absorbance (254 nm)	l/cm			0.088	no goal
Zinc	mg/L	<0.005	<0.005		5

Source: The H2O Group, 2010

Units

mg/L = milligrams per liter

ug/L = micrograms per liter

mg/L(N) = milligrams per liter nitrogen

mg/L as CaCO₃ = milligrams per liter as calcium carbonate

mg/L as C = milligrams per liter as carbon

mg/L as P = milligrams per liter as phosphorus

pCi/L = picocuries per liter

umho/c = micromhos per centimeter

TON = threshold odor number

mS/cm = milliSeimen/centimeter

NTU = Nephelometric Turbidity Unit

ml/mg = milliliter per microgram

Notes:

1. The CA Banks P.S and DMC2 samples were taken in November 2005.
2. The CA Patterson sample was taken on December 5, 2005.
3. NR - not reported.
4. Blank cells indicate that data are not available for the particular contaminant at the specific location
5. ND - not detected.

Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) regulates the water quality of all discharges into waters of the United States including wetlands, perennial and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water quality certification requirements for “any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters.” Section 404, Title 33, Section 1344 of the CWA in part authorizes the U.S. Army Corps of Engineers to:

- Set requirements and standards pertaining to such discharges: subparagraph (e);
- Issue permits “for the discharge of dredged or fill material into the navigable waters at specified disposal sites”: subparagraph (a);
- Specify the disposal sites for such permits: subparagraph (b);
- Deny or restrict the use of specified disposal sites if “the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies and fishery areas”: subparagraph (c);
- Specify type of and conditions for non-prohibited discharges: subparagraph (f);
- Provide for individual state or interstate compact administration of general permit programs: subparagraphs (g), (h), and (j);
- Withdraw approval of such state or interstate permit programs: subparagraph (i);
- Ensure public availability of permits and permit applications: subparagraph (o);
- Exempt certain federal or state projects from regulation under this Section: subparagraph (r); and,
- Determine conditions and penalties for violation of permit conditions or limitations: subparagraph (s).
- Section 401 certification is required prior to final issuance of Section 404 permits from the U.S. Army Corps of Engineers.

The California State Water Resources Control Board and RWQCBs that enforce State of California statutes are equivalent to, or more stringent than, the federal statutes. RWQCBs are responsible for establishing water quality standards and objectives that protect the beneficial uses of various waters. The City of Patterson lies within the jurisdiction of the Central Valley RWCB (Region 5). In the Study Area, the RWQCB is responsible for protecting surface and groundwater from both point and non-point sources of pollution. Water quality objectives for all of the water bodies within the Study Area were established by the RWQCB and are listed in its Basin Plan (the Sacramento-San Joaquin River Basin Plan).

State Regulations

Distribution and Water Rights

Groundwater rights in California are similar to surface water rights; however, no permit system or comprehensive regulatory method exists. The exception is groundwater deemed to be part of a subterranean stream or underflow that is hydraulically connected to a surface water body. In such cases, the source is classified as surface water and remains subject to the permitting authority of the State Water Resources Control Board (SWRCB). Groundwater law is primarily expressed through previous

legal decisions, and disputes among groundwater users are usually settled through judicial actions or adjudications. There are two main types of groundwater rights: overlying and appropriative.

Overlying Rights. Overlying rights apply to parcels that overlie a groundwater basin. Overlying rights are analogous to riparian rights for surface water. Overlying users do not have priorities with respect to one another, and each holder has a right to a reasonable share of the total groundwater supply available. Overlying rights may be active or dormant and are generally senior to appropriative rights (defined below). Note that water devoted to public uses (e.g., municipal water supply systems) is considered in most cases to be an appropriative use, rather than an overlying use, regardless of the location of the water use with respect to the aquifer.

Appropriative Rights. Appropriative rights apply to groundwater extractions used on lands that do not overlie the aquifer in question. Appropriative rights are analogous to appropriative rights for surface water. Appropriative rights are protected by the construction and use of a well, and putting the pumped water to reasonable and beneficial use. These rights are subject to a seniority system, where the appropriative right holder with the longest-standing right has first priority to groundwater in a condition of shortage.

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act governs the coordination and control of water quality in the state and includes provisions relating to non-point source pollution. This law required that the State Water Resources Control Board, along with the California Coastal Commission, regional boards, and other appropriate state agencies and advisory groups, prepare a detailed program to implement the state's non-point source management plan on or before February 1, 2001. The law also requires that the state board, in consultation with the Commission and other agencies, submit copies of prescribed state and regional board reports containing information related to non-point source pollution, on or before August 1 of each year.

Drinking Water Standards

Title 22 of the California Code of Regulations (CCR) outlines drinking water standards in the State of California. Maximum Contaminant Levels (MCL) for various contaminants are identified and are made enforceable regulatory standards under the federal Safe Drinking Water Act. MCL standards must be met by all public drinking water systems to which they apply. Primary MCLs can be found in 22 CCR Sections 64431–64444. Specific regulations for lead and copper are in 22 CCR Section 64670 et seq. Secondary MCLs that address the taste, odor, and appearance of drinking water are found in 22 CCR Section 64449.

Reclaimed Water Standards

Title 22 of the California Code of Regulations outlines reclaimed water standards in the State of California, and reclaimed water is primarily regulated by the California Department of Health Services (DHS), in coordination with the RWQCBs. DHS has produced The Purple Book, which contains California health laws related to reuse of disinfected tertiary recycled water. Disinfected tertiary recycled water is defined as filtered and subsequently disinfected wastewater that exhibits extremely low levels of coliform bacteria and turbidity. This publication identifies allowable uses for disinfected tertiary recycled water, as well as limitations and requirements for the use and control of recycled water.

Disinfected tertiary treated effluent may be used for groundwater recharge of domestic water supply aquifers by surface spreading provided the effluent is of a quality that fully protects human health at all times. For groundwater recharge projects, DHS makes recommendations to the RWQCB based on the relevant aspects of the project, including effluent quality and quantity, spreading area operations, soil characteristics, hydrogeology, residence time, and distance to withdrawal.

Senate Bill 610 (SB 610) and Assembly Bill 910 (AB910)

During the 2001 regular session of the State Legislature, SB 610 and AB 910 – Water Supply Planning were signed and became effective January 1, 2002. SB 610 amends Public Resources Code Section 21151.9, requiring any EIR, negative declaration, or mitigated negative declaration for a qualifying project to include consultation with affected water supply agencies (current law applies only to Notices of Preparation). SB 610 also amends Water Code Sections 10656 and 10657 to restrict state funding for agencies that fail to submit their urban water management plan to the Department of Water Resources, and Water Code Section 10910 to describe the water supply assessment that must be undertaken for projects referred to under PRC Section 21151.9, including an analysis of groundwater supplies. Water agencies would be given 90 days from the start of consultation in which to provide a water supply assessment to the CEQA lead agency; Water Code Section 10910 would also specify the circumstances under which a project for which a water supply assessment was once prepared would be required to obtain another assessment. AB 910 amends Water Code Section 10631, expanding the contents of the urban water management plans to include further information on future water supply projects and programs and groundwater supplies. It was determined at the time of enactment that SB 610 would not apply to General Plan updates. Nevertheless, this EIR includes an analysis of the water supply that mimics the procedures set forth pursuant to SB 610. As the principal water supplier, the City of Patterson will be required to complete Water Supply Assessments under the updated General Plan.

Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova

The requirements for satisfying the requirements the California Environmental Quality Act with respect to water supply issues were clarified by the California Supreme Court in 2005 in *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova*. In their ruling, the Court established a set of rules to guide the evaluation of water supply impacts. Most importantly, the court ruled that CEQA does not require a definite water supply -- rather, CEQA's reporting requirements are satisfied when an EIR fully discloses the uncertainties, likely water sources, their impacts and appropriate mitigation measures.

Senate Bill 221 (SB221)

SB 221 adds Government Code Section 66455.3, requiring that the local water agency be sent a copy of any proposed residential subdivision of more than 500 dwelling units within 5 days of the subdivision application being accepted as complete for processing by the city or county. It adds Government Code Section 66473.7, establishing detailed requirements for determining whether a “sufficient water supply” exists to support any proposed residential subdivisions of more than 500 dwellings, including any such subdivision involving a development agreement. When approving a qualifying subdivision tentative map, the city or county must include a condition requiring a sufficient water supply to be available. Proof of availability must be requested of and provided by the applicable public water system. If there is no public water system, the city or county must undertake the analysis described in Section 66473.7. The analysis must include consideration of effects on other users of water and groundwater. SB 221 does not apply to General Plans. However, this requirement would apply to any of the large subdivisions that would be developed after the General Plan update.

Senate Bill 7 – California Water Code Section 10608

Senate Bill 7 was enacted in November 2009 and requires all water suppliers to increase water use efficiency. The main aspects of the law are as follows:

- The legislation sets an overall goal of reducing per capita urban water use by 20% by December 31, 2020. The state shall make incremental progress towards this goal by reducing per capita water use by at least 10% by December 31, 2015.
- Each urban retail water supplier shall develop water use targets and an interim water use target by July 1, 2011.

- An urban retail water supplier shall include in its water management plan due July 2011 the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use. The Department of Water resources, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part
- The Department of Water Resources shall adopt regulations for implementation of the provisions relating to process water.
- A Commercial, Institutional, Industrial (CII) task force is to be established that will develop and implement urban best management practices for statewide water savings.
- Effective 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for state water grants or loans.

Local Regulations

Patterson Municipal Code

Section 13.20.020 prohibits the construction of wells within the City, except by the City.

Section 13.24.240 states no customer shall knowingly permit leaks or waste of water.

Section 15.48 sets forth the City's water efficient landscaping requirements, which includes standards for planting and irrigation intended to minimize the use of water.

City of Patterson Urban Water Management Plan

Enacted in 1983, the Urban Water Management Plan Act requires all water suppliers with at least 3,000 customers to prepare and adopt a plan every five (5) years. According to the act, the content of the plan shall include a description of water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

Specifically, the plan must:

- Provide current and projected population, climate, and other demographic factors affecting the supplier's water management planning;
- Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier;
- Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage;
- Describe plans to supplement or replace that source with alternative sources or water demand management measures;
- Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (associated with systems that use surface water);
- Quantify past and current water use;
- Provide a description of the supplier's water demand management measures, including schedule of implementation, program to measure effectiveness of measures, and anticipated water demand reductions associated with the measures;
- Assess the water supply reliability.

UWMP's are required to provide projections of water program data and information for a 20 year horizon, or "*as far as data is available*". Plans shall be adopted by the water supplier, and copies submitted to the California State Department of Water Resources (DWR).

Prior to action by a legislative body to adopt or substantially amend a general plan, the planning agency must send a copy of the proposed plan or amendment to any public water system, as defined in Health

and Safety Code §4010.1, with 3,000 or more service connections and that serves water to customers within the area covered by the proposal. The public water system has at least 45 days to comment on the proposed plan in accordance with §4010.1(b) and to provide the planning agency with the information set forth in §65958.1. Additionally, upon adoption or amendment of the general plan, the same referral must be made (§65357(a)).

The City adopted an UWMP in 2002 which was updated in 2006. The 2006 UWMP sets forth a program for providing water to the City through the year 2030 to accommodate a population of about 36,000 residents. As with the 2002 UWMP, the updated Plan discusses water supply alternatives, informed by the analysis provided in the 2006 Water Supply Planning Study. In addition, the 2006 UWMP provides a current assessment of water supply reliability, especially as it relates to surface supplies provided by the Central Valley Project and the Delta-Mendota Canal. The Plan concludes that water use for the year 2030 will require between 7,200 acre-feet to 8,200 acre-feet annually to satisfy potable demands, or between 90% to 102% of the confined groundwater safe yield. The Plan further concludes that Based on the SLDMWA study discussed in the Setting section, the City of Patterson's anticipated increase in pumping from 2,000 acre-feet/year to 8,200 acre-feet/year will be far below the safe yield of the groundwater available in the Delta-Mendota Sub-Basin. The 2006 UWMP recommends the conjunctive use of groundwater augmented by surface supplies to meet future demand. And, as with the 2002 UWMP, the update recommends a range of Demand Management Measures aimed at reducing overall water use.

Standards of Significance

In accordance with Appendix G of the CEQA Guidelines, a significant water supply impact would occur if the project would result in one or more of the following:

1. Exceed available water supplies from existing entitlements and resources, and require new or expanded entitlements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
3. Supplying water would require the extension of water supply conveyance infrastructure into previously unserved areas, require the construction of new treatment infrastructure, or require significant alterations to existing infrastructure, which would result in potentially significant environmental impacts.
4. Installing new wells or pumping groundwater would introduce new contaminants into the aquifer.
5. Supplying water would require disposal of significant amounts of waste as a byproduct of treating water to attain water quality standards.
6. Supplying water would use more energy than could be supplied by electric utilities serving the Study Area.

Project Impacts and Mitigation Measures

Methodology

The following assessment of water supply impacts associated with each of the Equal-Weight Alternatives was derived from consultations with City staff, a review of previous and ongoing water planning documents including the 2002 and 2006 City of Patterson Urban Water Management Plans. To

assess the water supply impacts associated with the Equal-Weight Alternatives and to establish a program for meeting the future water demand, the City contracted with The H2O Group to prepare a Water Supply Analysis (WSA) as part of this EIR. The WSA sets forth a program for the provision of water to serve each of the Equal-Weight Alternatives, and includes an assessment of water supply options, and the reliability of those options. In addition, the WSA recommends infrastructure improvements to serve the areas contemplated for urban development by each Alternative. The study is provided in its entirety as Appendix 5.4.

Future Water Demand Will Exceed the City's Available supplies

Impact 5.4-1 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives in either the 20-year or 40 year buildout growth boundaries will require additional water supplies beyond supplies currently available to the City. This impact is considered potentially significant.

Future water demand associated with each of the Equal Weight Alternatives is summarized in Table 5.4-8 by water year type, and based on the water demand factors provided in Table 5.4-5.

Table 5.4-8: Comparison of Estimated Water Demands By Equal-Weight Alternative and Growth Boundary/Planning Timeframe With Existing (2010) City Water Supplies (acre-feet per year)						
Alternative	Growth Boundary/Timeframe	Potable Demand	Non-Potable Demand	Total Demand	Existing Supply ¹	Supply Minus Total Demand
Compact Development	20-Year	10,179	5,408	15,587	8,300	-7,287
	40-Year (buildout)	11,055	6,919	17,973	8,300	-9,673
Jobs Emphasis	20-Year	11,060	6,771	17,831	8,300	-9,531
	40-Year (buildout)	13,738	10,967	24,705	8,300	-16,405
Planning Commission Env Review	20-Year	12,646	9,592	22,237	8,300	-13,937
	40-Year (buildout)	14,604	12,707	27,311	8,300	-19,011
Source: The H2O Group, 2010, Table 2-8.						
Notes:						
1. Estimated quantity of groundwater resources available to the City by 2006 Urban Water Management Plan.						

As shown in Table 5.4-8, water demand associated with each of the Equal-Weight Alternatives for both the 20-year and 40 year buildout growth boundaries is significantly greater than the City's projected production of groundwater supplies documented by the 2006 Urban Water Management Plan (see Table 5.4-3). The projected groundwater production provided in the 2006 UWMP would be sufficient to serve a population of about 35,500. Thus, development beyond a population of about 35,000 under any of the

Equal-Weight Alternatives will exceed available supplies. This is considered a potentially significant impact.

Draft General Plan Policy Response

The draft General Plan includes policies that address the increased water demand that may result from implementation of the Equal-Weight Alternatives, including the following:

Policies

- NR-1.10 Water conservation.** The City shall promote the efficient use of water.

- PR-1.11 Design for droughts.** The City shall emphasize the use of drought-tolerant, drought-resistant and low use irrigation landscaping in the development of City parks.

- PS-1.1 Water supply.** The City shall continue to use groundwater as a source of domestic water for the city. The City shall also pursue, as expeditiously as possible, acquisition of surface water rights to supplement its water supply in order to accommodate projected water demand and provide for water supply security.

- PS-1.2 City-owned systems.** The City shall expand and develop water treatment, distribution, and storage facility systems to accommodate the needs of existing and planned development.

- PS-1.3 Supply for new development.** The City shall not approve any new development without the demonstrated assurance of an adequate water supply to support such development and a City-approved funding mechanism to pay for necessary improvements.

- PS-1.4 Agency coordination.** The City shall coordinate, to the extent feasible, with other agencies involved in water resource development in the region.

- PS-1.5 Water conservation.** To minimize the need for the development of new water sources and facilities and sewer treatment needs, the City shall promote water conservation both in City operations and in private development. (See Policy

- PS-1.6 Reclaimed water.** The City shall require the use of reclaimed water by industrial, commercial, recreational, agricultural and roadway landscaping uses.

- PS-1.7 Agricultural uses.** The City shall prohibit the use of treated, potable water supplies for commercial agricultural uses.

- PS-1.8 Leaking water lines.** The City shall systematically replace or repair leaking water lines.

- PS-1.9 Adequate fire flows.** The City shall ensure the provision of water supply, storage, and adequately-sized pipelines to provide fire flows to meet recommendations of the City Fire Chief and City Engineer (see Policy HS-3.2).

- PS-1.10 Improvement costs.** The City shall, through a combination of water development fees and other funding mechanisms, ensure that new development pays its share of the costs of water system improvements.
- PS-1.11 New development conservation measures.** The City shall require all new development to use best available technologies for water conservation including, but not limited to, water-conserving toilets, showerheads, faucets, and irrigation systems.

Implementation Measures

- NR-2** The Within 24 months of adoption of the General Plan, the City shall prepare and adopt a comprehensive water conservation plan, which includes but is not limited to, the following:
- a. Landscape watering timing restrictions;
 - b. Requirements for water-efficient irrigation equipment for all new private and public development;
 - c. Enforcement strategies for water waste;
 - d. Recommendations for water-efficient landscape ordinances;
 - e. Evaluation of and recommendations for water conservation pricing (such as a tiered rates for water users) to encourage efficient use;
 - f. Strategies for providing individualized water audits for large accounts to identify conservation opportunities;
 - g. Requirements for water efficiency training and certification for irrigation designers, installers, and property managers operating within the City.
- PS-1** The City shall review and periodically update the City's Water Master Plan and Urban Water Management Plan consistent with the land use patterns and densities/intensities specified in the General Plan.
- PS-2** The City shall develop and implement a water pipeline replacement and water meter replacement program.

Additional Mitigation

The following additional mitigation are recommended (changes are shown in italics).

- PS-1.3 Supply for new development.** The City shall not approve any new development without the demonstrated assurance of an adequate water supply to support such development and a City-approved funding mechanism to pay for necessary improvements. *Such assurance shall be provided in a form and manner determined by the City, and may include, but is not limited to, the following:*
- a. *A contract between the property owner(s) and a water purveyor guaranteeing the long-term delivery of a suitable quantity of water to serve the intended use of the property consistent with the General Plan;*
 - b. *A contract between a water purveyor and the City guaranteeing the long-term delivery of a suitable quantity of water to serve the intended use of the property consistent with the General Plan;*
 - c. *Such other mechanism suitable to the City.*

- NR-2 The Within 24 months of adoption of the General Plan, the City shall prepare and adopt a comprehensive water conservation plan, which includes but is not limited to, the following:
- a. Landscape watering timing restrictions;
 - b. Requirements for water-efficient irrigation equipment for all new private and public development;
 - c. Enforcement strategies for water waste;
 - d. Recommendations for water-efficient landscape ordinances;
 - e. Evaluation of and recommendations for water conservation pricing (such as a tiered rates for water users) to encourage efficient use;
 - f. Strategies for providing individualized water audits for large accounts to identify conservation opportunities;
 - g. Requirements for water efficiency training and certification for irrigation designers, installers, and property managers operating within the City.
 - h. Measures to ensure a reduction in per capita water demand City-wide of 20 percent by the year 2030. Such measures may include, but are not limited to, the following:
 - *Water Survey Programs for Single-Family Residential and Multi-family Residential Customers;*
 - *Residential Plumbing Retrofit;*
 - *System Water Audits, Leak Detection and Repair;*
 - *Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections;*
 - *Large Landscape Water Audits and Incentives;*
 - *High-efficiency Washing Machine Rebate Programs;*
 - *Public Information Programs;*
 - *School Education Programs;*
 - *Commercial and Industrial Water Conservation;*
 - *Wholesale Agency Assistance;*
 - *Conservation Pricing;*
 - *Conservation Coordinator;*
 - *Water Waste Prohibition;*
 - *Residential Ultra Low Flow Toilet Replacement Programs*

The policies and implementation measures outlined above help ensure that an adequate supply of water will be available before additional development may occur beyond supplies currently available to the City. Current supplies are sufficient to serve additional development accommodated by any of the Equal-Weight Alternatives until the City's population reaches about 35,000. Additional development/population will require a secondary source of water supply. The following implementation measure is recommended to address the need for a secondary, long-term water supply:

- PS-15 The City will prepare, adopt and implement a program for development of a secure, reliable, affordable long-term secondary water supply. Such a program shall include, but shall not be limited to, the following:
- a. The development of multiple sources of water, including, but not limited to:
 - i. Recycled water;
 - ii. Surface water;
 - iii. Conservation;

- b. Water conservation measures, including but not limited, the following:
 - i. Best Management Practices as recommended by the Department of Water Resources;
 - ii. Conservation strategies necessary to ensure compliance with the per capita water demand reduction requirements of State law;
 - iii. The installation of non-potable water supply infrastructure in all new expansion areas;
- c. Groundwater management, including:
 - i. Participation in regional groundwater management efforts;
 - ii. The enhancement of groundwater recharge to increase groundwater supplies, ensure the protection of water quality and reliability, and to minimize impacts to other groundwater users;
- d. The conjunctive management of water resources;

The following is a more detailed discussion of the reliability, uncertainties and potential environmental consequences of the implementation measure described above.

Overview of Water Supply Strategy

The recommended water supply strategy for meeting demands associated with the Equal-Weight Alternatives is based on the conjunctive use of groundwater augmented by surface water supplies that currently serve the area, and a much greater reliance on conservation and recycled water to offset traditional potable water demand. A primary objective for meeting future water demands is to maximize local control of the City's water supplies and to minimize variables controlled by regional or state water interests. This strategy is based on the following assumptions:

- At least some of the water currently serving the areas designated for urban development within the Study Area will continue to serve these areas. Essentially, local irrigation and water districts will continue supplying surface water to those areas they have served historically.
- Prior to annexation to the City, agreements will be made among the City, property owners, and irrigation/water districts regarding how these existing water supplies will be retained and delivered to the City for serving those properties.
- Development within expansion areas (including new residential neighborhoods) will be required to construct dual plumbing systems so that all outdoor use of water can be met with non-potable supplies.
- Senate Bill 7 (passed November 2009) requires the State to reduce urban per capita water use by 20% by the year 2020. The recommended water strategy assumes that the City, as an urban water provider, will meet this reduction within their existing (2010) water service area. This 20% reduction does not include the use of recycled water or existing conservation efforts. Recycled water represents an additional reduction beyond the 20%.
- Development within expansion areas will be required to incorporate water-conserving provisions that result in a 20% reduction from current "business as usual" water demand factors. This 20% reduction is independent of the use of recycled water use.
- The City will use recycled water from its wastewater treatment plant to meet a portion of the overall outdoor demands. By the Year 2050, and depending on both the land use alternative chosen and the success of the groundwater recharge program (discussed below), the City may

need to extend recycled water to all outdoor water use areas currently (2010) receiving potable water.

- Year-to-year reliability of surface water may require a greater dependency on groundwater. Accordingly, groundwater management will be a primary objective of the City's water program. This strategy recommends the augmentation of groundwater recharge with surface water, recycled water and storm water runoff through the use of spreading basins as a means of enhancing groundwater storage and providing a reliable, long-term potable water supply.

Implementation can be further divided among three components:

- Develop Multiple Sources of Water
- Conservation – Reducing Water Demand, and
- Conjunctive Management of Water Resources – Groundwater Management

Each of these components is described below.

1. Develop Multiple Sources of Water

Groundwater

Groundwater will continue to be a potable water supply source to the City. The Patterson Irrigation District and the West Stanislaus Irrigation District both operate groundwater wells to augment their surface supplies. In addition, both the WSID and the DPWD have received federal grants to construct 27 additional wells: 7 for WSID and 20 for WSID. However, as discussed in the Setting, the safe yield of the groundwater basin underlying the City and the Study Area is limited.

Reliability. For purposes of this water supply strategy, 8,300 AFY will be assumed available for the City's use, consistent with the findings of the 2006 UWMP.

Surface Water

San Joaquin River

Both WSID and PID have rights to water from the San Joaquin River. WSID can take up to 545 ac-ft per day when available, and PID is limited at their intake to about 340 ac-ft/day. PID water rights were established prior to 1914, which allows them to use the water in almost all water years without restrictions. WSID has rights to divert water from the State's Department of Water Resources and is subject to some pumping restrictions based on time of year and river flows; however, they have received no restrictions to their use of River water during the past 30 years.

Reliability. For purposes of water supply planning, the reliability of deliveries of San Joaquin River water from WSID is assumed to be less than that for PID to reflect WSID's junior water right. The reduction assumed for planning purposes is arbitrary, but based on San Joaquin River Index (see Table 5.4-9). The index shows a 40% reduction between a normal water year and dry years. To provide a conservative estimate of San Joaquin River supplies, it is assumed that WSID would also see this reduction even though they historically never have. Further reductions for multiple dry and extremely dry years are also assumed and are very conservative.

For both PID and WSID, the volume of River water available to serve the Study Area is estimated to be 3.0 acre feet of water per acre of land. In reality, a much greater volume is likely available. As shown in Table 5.4-9, the anticipated reliability of this amount of water was reduced dependent on water year type, even though pumping restrictions have not occurred in the past. Reductions are shown to ensure a conservative estimate of deliveries.

In either case, the City would use River water to help meet non-potable demands and as a source of groundwater recharge. These uses do not require a high degree of reliability, even though historically the delivery of River water has seen no restrictions.

Table 5.4-9: San Joaquin River Index				
Water Year Type	San Joaquin River Index ¹ (Acre Feet)	Frequency of Occurrence Since 1904		Percent Reduction of Index
		No. Of Years	Percentage of Years	
Wet Year	3,800,000	35	34%	40%
Normal Year	3,500,000	19	18%	
Below Normal	2,800,000	17	17%	
Dry	2,100,000	15	15%	
Extremely Dry	<2,100,000	17	17%	
Source: Source: San Joaquin River Group Authority "Integrated Report - 2008 List of Impaired Waters and Surface Water Quality Assessment [303 (d)/ 305 (b)]", prepared by O'Laughlin & Paris LLP, Chico, CA. February, 2007. Notes: 1. Index is based on 60% of unimpaired runoff flows in April through July, 20% unimpaired flows October through March, and 20% of last years total flow capped at 4,500,000 acre-feet.				

The Central Valley Project

All three of the irrigation and water districts serving the Study Area are federal water contractors with entitlements to water from the Central Valley Project. The Water Project's facilities are operated by the San Luis Delta Mendota Water Authority.

Reliability. CVP deliveries have historically been subject to limitations. The current conflicts in the San Joaquin River Delta between pumping and fish populations have further reduced project deliveries. Additionally, the Department of Health Services has historically opposed the use of CVP water for potable use because of the drainage flows that enter the system upstream of the City. Accordingly, CVP water cannot be relied on by the City to meet future potable demands. However, this water could be used to help augment groundwater supplies, and help meet non-potable demands.

Since the CVP facilities are manmade, there is a higher probability of interruptions in surface water deliveries compared to communities that receive water directly from rivers above the Delta. Additional potential constraints include:

- Failure of conveyance facilities (DMC) due to earthquakes, acts of terrorism, or unscheduled maintenance or facility failures (e.g. canal linings, pumps, gates, etc.),
- Conflicts with Delta water quality goals,
- Competing demands for space in the conveyance systems,
- Deteriorated water quality due to upstream discharges or salt intrusion.

In general, the reliability of a surface water supply depends on a combination of factors as discussed below.

Availability of Source Water

The availability of source water in the “system” depends primarily on the amount of snow and rain that falls above the storage reservoirs during any given year. Most water reliability models use historical data, typically dating back to the early 20th century, to forecast water availability and predict periods of severe shortages. However, studies on climate change suggest that a warming trend may be occurring in our region. Climate models studied by the Scripps Institution of Oceanography²⁸ indicated that there could be a reduction in northern Sierra precipitation by about one-third to one-half by the middle and end of the century. Other studies by UC Santa Cruz²⁹ indicate an increase in total precipitation by about 25 percent in northern regions, but less total snowpack. Thus, it should be recognized that water availability is a variable in long-term water planning.

Conveying Water from Source to Point of Delivery

This factor considers the ability of natural and man-made facilities to move water to the point of delivery. Typically this component includes capacity of facilities as well as institutional limitations (legal, contractual, or regulatory). Most reliability models do not include interruptions due to natural causes, facility failures, malevolent acts, etc.

Competing Demands

Demands on systems have impacts on the reliability of deliveries during specific periods. For example, there is a high demand for water during the summer months from both agriculture and M&I uses. Although there may be available water supplies and facility capacity to meet annual demands, competition during peak demand periods could hinder deliveries.

Recycled Water

Treated wastewater represents a potential source of non-potable water for use within the Study Area. A substantial portion of the current potable demand within the City is generated by outdoor use, primarily related to landscape irrigation. If some or all of the present and future outdoor use is irrigated with non-potable water, it would reduce the amount of potable water needed to serve future water customers.

The wastewater treatment plant currently (2010) treats wastewater to a secondary level of treatment in accordance with the treatment plant’s Waste Discharge Requirements set forth in Order No. 5-00-146 issued by the Regional Water Quality Control Board. The treated effluent is pumped to open air disposal ponds where it percolates into the ground. No discharge to the San Joaquin River is allowed. However, treated wastewater could be used to irrigate landscaping and play fields within the Study Area.

²⁸ Michael D. Dettinger, Daniel R. Cayan, Noah Knowles, Anthony Westerling, and Mary K. Tyree, Recent Projections of 21st-Century Climate Change and Watershed Responses in the Sierra Nevada, presented at the Sierra Nevada Science Symposium, October 7–10, 2002, Kings Beach, California

²⁹ Geophysical Research Letters, June 2002

The use of recycled water for irrigation purposes is governed by Title 22 of the California Code of Regulations, Section 60304, which establishes different levels of treatment and accessibility by the public depending on the application. In sum, a higher level of treatment is required for the irrigation of edible food crops where the water comes in contact with the edible portion of the crop, and lesser levels of treatment are required for irrigation water used for orchards, nursery and ornamental crops and for yards and ball fields. In general, for irrigation purposes wastewater must be treated to a tertiary level of treatment, which may involve a number of processes that include filtration, lagooning, nutrient removal, and disinfection, depending on the constituents in the wastewater stream. The City has proposed tertiary treatment as part of the 2010 General Plan Update. The reader is referred to section 5.5 Wastewater, for a more complete discussion of the City's existing and proposed wastewater treatment system.

Based on the discussion provided in section 5.5 - Wastewater, the amount of recycled water potentially produced would vary with each Equal-Weight Alternative as shown in Table 5.4-2.

Table 5.4-10: Projection of Future Average Annual Wastewater Flows By Equal-Weight Alternative (million gallons per day)			
Alternative	Average Annual Wastewater Flow	Average Annual Wastewater Flows 2030	Average Annual Wastewater Flows At 2050 (Buildout)
Current (2010)	1.52		--
Compact Development	--	4.55 ¹	5.75 ²
Jobs Emphasis	--	4.87 ¹	6.40 ²
PC Environmental Review	--	5.87 ¹	7.00 ²
Source: Lee and Ro, 2010			
Notes:			
1. Includes an allowance of 0.5 mgd from the Diablo Grande project.			
2. Includes an allowance of 0.75 mgd from the Diablo Grande Project.			

For purposes of this water supply strategy, projected wastewater volumes were reduced to account for projected reduction in existing and future indoor water use (5%), and use of reclaimed water during the irrigation season only 8 of 12 months (33%). It is assumed the City will use its current disposal methods for the treated wastewater when irrigation demands are low or potentially use these winter flows to support the groundwater recharge program discussed below. With utilization of the winter flows, there is the potential for additional reclaimed supplies. However, storage of the winter flows in a lake or reservoir for subsequent use during the irrigation season is not considered feasible at this time due to the size of the storage facility. Preliminary estimates of the size of such a basin could be as large as 200 acres and 10 feet deep.

Depending on the future availability of groundwater through the recharge program (discussed below), the need to extend recycled water service into the existing (2010) service area may arise. Recycled water delivered within the existing city limits offsets the potable water that is currently being used for that

purpose, making it available for use by others elsewhere. The potential need for this recycled water/potable water "exchange" increases as the demands increase. The need for exchanging potable water for recycled water has been adjusted to match the demands. In theory, after conservation, there will be 2,725 ac-ft of non-potable residential and commercial demands occurring within the current city limits. This is the limit to how much potable water can be exchanged for recycled water. All additional recycled water use above 2,725 ac-ft per year is solely used to meet future non-potable demands. This option provides a "safety net" for meeting future demands, but is not included as part of the recommended water supply program.

The non-potable water demands for the City will exceed the amount of recycled water that will be generated by future development. Irrigation water from the local water and irrigation districts will continue to be needed in the future to meet irrigation demands. They will also be needed to supplement the groundwater recharge program.

The City will expand the non-potable water distribution system throughout the city so that outdoor water demands can be served independent of the potable water system. The non-potable water system will be supplied by both irrigation water from the surrounding districts and recycled water from the City's WWTP.

Reliability. Recycled water represents a reliable, longer-term supply of non-potable water. During the dry months of the year, recycled water could replace potable water use for outdoor applications, freeing the potable use for other applications.

2. Conservation -- Reducing Water Demand

Water conservation is a key component of the City's future water supply program. For the City of Patterson, conservation measures will be applied to the existing service area and to future development. The City's 2006 UWMP outlines a number of programs to reduce water demands. More specifically, the City has agreed to implement the California Urban Water Conservation Council Best Management Practices (BMPs), including the following:

- Nearly all dwellings in Patterson are metered and read on a monthly basis. An increasing block tier rate was implemented in 2006 to encourage conservation. High water usage reports are generated for those accounts showing higher than typical usage and are provided to the customers and customers are advised of their higher usage and provided information to help minimize their usage and offer to have a field representative perform a leakage test on their service.
- The City requires that all new residential construction and major remodels install low-flow fixtures. The City provides low-interest loans to qualified homeowners making major home repairs including plumbing retrofits. The City of Patterson currently does not have the financial resources to implement a replacement or rebate program for residents who install ultra-low flow toilets in their homes.
- The City has implemented a Leak Detection and Repair Protocol that is triggered by the identification of a potential problem by either the City's meter reader or the customer. Once reported, the City will investigate the service connection and meter to determine the source of the problem. The City will make any repairs, as necessary, or advise the customer if it is on the customer's side of the meter. The City has a Water Pipeline Replacement Program to replace older water pipelines within the City that may be leaking, are undersized, or made from inferior materials.

- A Conservation Coordinator position was filled in 7/01/03. This position was created as a part-time position and the salary is paid 50% out of Water Funds and 50% out of Sewer Funds.

In November of 2009, Senate Bill 7 was signed into law. The bill requires all water purveyors within the state (including the City) to reduce water use by 20 percent by the year 2020. Meeting this requirement will require conservation measures applied to existing and future water users. New development will be required to incorporate water conservation measures which results in water demand that is 20% less than current demand factors for the particular use.

The 20% reduction required by SB7 applies to potable and non-potable water use. The goal is to reduce overall demand, whether with potable or non-potable water sources. In the state program, a credit towards meeting the 20% reduction in demand is given for the use of reclaimed or recycled water. For purposes of water supply planning, it is assumed that the 20% reduction will be achieved independent of the use of recycled water. Accordingly, the use of recycled water (discussed above) represents a potential additional water demand reduction over and above the 20% required by SB7. The conservation that occurs within the City's existing water service area produces additional potable water supplies by reducing current potable water uses. All water use, in-door and out-door, in the existing service area is currently potable.

Specific strategies for achieving the 20% conservation goal required by SB7 will be identified in the City's 2010 Urban Water Management Plan³⁰ (2010 UWMP). The state is devising a consistent method for calculating water use and demands from which the 20% reductions can be determined; the State is expected to provide this methodology in October of 2010. The deadline for submitting the 2010 UWMP update has been extended from the end of 2010 to June 2011, so that the statewide approach will be uniform.

To assist local jurisdictions in devising strategies to meet the 20% reductions required by SB7, the state has identified 14 Best Management Practices (BMPs), as summarized in Table 5.4-11.

³⁰ UWMP per California Water Code 10617

Table 5.4-11: Water Conservation Best Management Practices	
Number	Description
BMP1	Water Survey Programs for Single-Family Residential and Multi-family Residential Customers
BMP 2	Residential Plumbing Retrofit
BMP 3	System Water Audits, Leak Detection and Repair
BMP 4	Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections
BMP 5	Large Landscape Water Audits and Incentives
BMP 6	High-efficiency Washing Machine Rebate Programs
BMP 7	Public Information Programs
BMP 8	School Education Programs
BMP 9	Commercial and Industrial Water Conservation
BMP 10	Wholesale Agency Assistance
BMP 11	Conservation Pricing
BMP 12	Conservation Coordinator
BMP 13	Water Waste Prohibition
BMP 14	Residential ULFT Replacement Programs

Reliability. Conservation represents a stable, long-term approach for improving the supply of potable water use which does not rely on the development of new sources.

3. Conjunctive Management of Water Resources -- Groundwater Recharge

Groundwater is currently the sole source of potable water supplies to the City. For this reason, the City is actively participating in regional groundwater management and water supply planning efforts. As defined in DWR Bulletin 118, Update 2003, “Groundwater management is the planned and coordinated monitoring, operation, and administration of a groundwater basin or portion of a groundwater basin with the goal of long-term sustainability of the resource.”³¹

A critical component of the City’s future water supply program will be recharging of the groundwater basin to increase its reliability, assure its water quality and increase production quantities. The City has multiple sources of water that could be used to recharge the groundwater basin and increase groundwater availability as described below.

Drainage Water

It is anticipated that with proper storm drain and drainage basin system designs, 2,500 to 4,500 ac-ft/year of storm runoff could be captured from groundwater recharge. This is based on a 10-year average and assumes: 60% of the annual rainfall actually turns into runoff, 50% of runoff is captured and put into a spreading basin rather than letting it flow to the river, and that 50% of the water entering the basin will enter the groundwater table and be captured by a City well.

³¹ California State Department of Water Resources "Groundwater Management Center"
<http://www.water.ca.gov/groundwater/>.

Recycled Water

The recycled water program discussed above did not utilize the recycled water flows when irrigation demands are low during the winter. The City could utilize this water in a spreading or recharge basin. Utilizing the winter flow of recycled water and assuming the recharge is only 50% effective would yield an additional 1,000 to 1,500 ac-ft per year. This water could also be used in exchange for other supplies from one of the local irrigation districts or to support a regional groundwater recharge program.

Irrigation Supplies San Joaquin River Water and Central Valley Project Water

The use of irrigation water to recharge the groundwater basin can conservatively produce between 4,500 and 6,500 ac-ft each year, assuming a capture rate of 50%.

Depending on the Equal-Weight Alternative selected, the City may need to increase annual groundwater basin production for potable use by 1,000 to 1,500 ac-ft during critically dry years. If this source of water proves to be as viable as estimated, it may be a more cost-effective solution to increasing potable water demands than the expansion of the recycled water system into the existing City service areas.

Groundwater recharge can occur in several different ways. The most common methods are spreading basins, pits, or through well injection. The City may find that a combination of these methods works best. Of these three alternatives, spreading basins will likely be the easiest. Conservatively, infiltration rates for waters applied to the spreading basins will be about 3 inches per day. If the basins are operated 8 months out of the year (not used in summer months) each acre of spreading basin would produce 60 ac-ft of water per year.

Groundwater flows in the City are from the southeast towards the northwest, basically parallel to Highway 33 northbound. The ground slope is from the west down towards the San Joaquin River in the east. Thus, drainage is perpendicular to groundwater flows. Ideally, recharge would occur in the southern part of the City. However, the best soils for recharge are generally in areas of coarse alluvium, often found where drainage courses exit the coastal range. The most probable location for effective groundwater recharge basins is in the northwest area near where the DMC crosses Del Puerto Creek.

Summary of Total Water Supplies Available to the Study Area

Table 5.4-12 provides a summary of existing and potential future water supplies available to the Study Area from each source. Due to reliability probabilities (discussed below), there are very few years when all of the water shown would be available.

Table 5.4-12: Summary of Total Existing and Future Water Supplies Available To The Study Area		
Source/Purveyor	Water Right or Available Supply ³ (AFY)	Anticipated Potable or Non-Potable Use
Existing Supplies		
Patterson Irrigation District		
Groundwater ¹	--	Non-Potable
River Water ²	9,585	Non-Potable
Central Valley Project	6,390	Non-Potable
Sub-Total:	15,974	
West Stanislaus Irrigation District		
Groundwater ¹	--	Non-Potable
River Water ²	5,421	Non-Potable
Central Valley Project	4,168	Non-Potable
Sub-Total:	9,589	
Del Puerto Water District		
Groundwater ¹	--	Non-Potable
Central Valley Project	7,537	Non-Potable
Sub-Total:	7,537	
City of Patterson		
Groundwater ¹	8,300	Potable
Sub-Total Existing Supplies	41,400	
Future Supplies		
Recycled Water ⁴	6,346	Both
Conservation	5,462	Both
Groundwater Recharge/Spreading Basins	11,285	Both
Sub-Total Future Supplies:	23,093	
Total Existing Plus Future:	64,493	
Source: The H2O Group, 2010		
Notes: (see below)		

Notes for Table 5.4-12:

1. Studies completed by the City in 2006 suggest that groundwater supplies in the vicinity of the City are limited. Therefore, for purposes of this analysis, no additional contribution from groundwater is assumed beyond the amount produced by the City.
2. Assumes 3.0 acre-feet of water per acre of land.
3. Water allocation associated with the acreage within the General Plan Study Area as summarized on Table 5.4-1.
4. As provided by Lee and Ro, 2010, based on estimated wastewater flow rates provided in Table 5.4-10, reduced by 5% to account for indoor water use conservation (which in turn reduced wastewater flow) and assumes demand for recycled water use occurs 8 months of the year. In the remaining months, treated wastewater will be disposed of in the percolation basins described in section 5.5 Wastewater.
5. Assumes groundwater recharge will be augmented through the use of spreading basins which will make use of recycled water during the rainy season, stormwater runoff, and surface water supplies with a lower measure of reliability. The reader is referred to Appendix 5.4, Table 3.18 for calculations.

Reliability of Water Supplies in Wet/Normal, Single Dry, Multiple Dry and Extremely Dry Years

For purposes of assessing the long term reliability of supplies serving the Study Area, this analysis considers four (4) water year types:

- Wet or Normal – Wet or normal water years are those water years that match or exceed median rainfall and runoff levels.
- Single Dry - A single dry year is generally considered to be the lowest annual runoff for a watershed recorded since the 1903-04 water year.
- Multiple Dry- A multiple dry year period is generally considered to be the lowest average runoff recorded over a consecutive multiple year period (three years or more) for a watershed since 1903. For example, 1928-1934 and 1987-1992 were the two multi-year periods of lowest average runoff during the 20th Century in the Central Valley Basin.
- Extremely Dry - Historically, on the Central Valley Project, agricultural-reliability water could be cut to as little as 13 percent of its contractual allotment. However, now the challenges between Delta pumping and endangers species can potentially reduce deliveries to zero.

Table 5.4-13 provides a summary of the percentage of anticipated deliveries from each source by water year type. Based on the review of past studies, discussion with the water districts and San Luis Delta Mendota Water Authority (Central Valley Project operators), the reliability of each of the General Plan's areas current and future water supplies and their projected availability for different water year types are summarized in Table 5.4-14.

**Table 5.4-13: Percent of Anticipated Deliveries From Each Source
By Water Type Year**

Purveyor	Normal/Wet	Single Dry	Multiple Dry	Extremely Dry
Patterson Irrigation District				
Groundwater ¹	0	0	0	0
River Water ²	100	85	75	50
Central Valley Project	75	25	10	0
West Stanislaus Irrigation District				
Groundwater ¹	0	0	0	0
River Water ²	100	60	40	25
Central Valley Project	75	25	10	0
Del Puerto Water District				
Groundwater ¹	0	0	0	0
Central Valley Project	75	25	10	0
City of Patterson				
Groundwater	100	100	100	100
Source: The H2O Group, 2010 Notes: 1. Studies completed by the City in 2006 suggest that groundwater supplies in the vicinity of the City are limited. Therefore, for purposes of this analysis, no additional contribution from groundwater is assumed beyond the amount produced by the City. 2. Assumes 3.0 acre-feet of water per acre of land. 3. Water allocation associated with the acreage within the General Plan Study Area as summarized on Table 5.4-1.				

Table 5.4-14: Summary of Total Water Supplies Available To Serve The Study Area In Different Water Type Years

Purveyor	Normal/Wet Year	Single Dry Year	Multiple Dry Years	Extremely Dry Year
Patterson Irrigation District				
Groundwater ¹	--	--	--	--
River Water ²	9,585	8,147	7,188	4,792
Central Valley Project ³	4,792	1,597	639	--
Sub-Total:	14,377	9,744	7,827	4,792
West Stanislaus Irrigation District				
Groundwater ¹	--	--	--	--
River Water ²	5,421	3,252	2,168	1,355
Central Valley Project ³	3,126	1,042	417	--
Sub-Total:	8,547	4,295	2,585	1,355
Del Puerto Water District				
Groundwater ¹	--	--	--	--
Central Valley Project ³	5,653	1,884	754	--
Sub-Total:	5,653	1,884	754	0
City of Patterson				
Groundwater ¹	8,300	8,300	8,300	8,300
Sub-Total:	36,876	24,223	19,466	14,447
Recycled Water ⁴	6,346	6,346	6,346	6,346
Conservation	5,462	5,462	5,462	5,462
Groundwater Recharge/Spreading Basins ⁵	11,285	11,285	11,285	11,285
Total:	59,969	47,316	42,559	37,540

Source: The H2O Group, 2010

Notes:

1. Studies completed by the City in 2006 suggest that groundwater supplies in the vicinity of the City are limited. Therefore, for purposes of this analysis, no additional contribution from groundwater is assumed beyond the amount produced by the City.
2. Assumes 3.0 acre-feet of water per acre of land.
3. Water allocation associated with the acreage within the General Plan Study Area as summarized on Table 5.4-1.
4. As provided by Lee and Ro, 2010, based on estimated wastewater flow rates provided in Table 5.4-10, reduced by 5% to account for indoor water use conservation (which in turn reduced wastewater flow) and assumes demand for recycled water use occurs 8 months of the year. In the remaining months, treated wastewater will be disposed of in the percolation basins described in section 5.5 Wastewater.
5. Assumes groundwater recharge will be augmented through the use of spreading basins which will make use of recycled water during the rainy season, stormwater runoff, and surface water supplies with a lower measure of reliability. The reader is referred to Appendix 5.4, Table 3.18 for calculations.

Water Supplies and Demand in Wet/Normal, Single Dry, Multiple Dry and Extremely Dry Years

Tables 5.4-15, 5.4-16, 5.4-17 and 5.4-18 summarize projected water supplies and demand for each Equal-Weight Alternative for wet/normal, single dry, multiple dry and extremely dry water years, respectively, based on implementation of the water supply strategy outlined above. As shown in these tables, ample water supplies are available to serve each Equal-Weight Alternative in each water year type.

Table 5.4-15: Normal Year Supply and Demand For Each Equal-Weight Alternative (acre-feet per year)			
Water Source	Equal-Weight Alternative		
	Compact Development	Jobs Emphasis	PC Env Review
Supplies			
Patterson Irrigation District	6,434	10,006	14,377
West Stanislaus Irrigation District	5,043	6,956	8,547
Del Puerto Water District	3,189	6,302	5,653
City of Patterson	8,300	8,300	8,300
Recycled Water	4,706	5,562	6,346
Conservation	3,595	4,941	5,462
Groundwater Recharge/Spreading Basins	7,530	9,502	11,285
Total Available Supplies:	38,797	51,568	59,970
Total Demand (20-year and 40 year buildout Growth Boundaries Combined:	17,973	24,705	27,311
Shortfall (excess)	(20,824)	(26,863)	(32,659)
Source: The H2O Group, 2010, Table 3-6.			

**Table 5.4-16: Single Dry Year Supply and Demand For Each Equal-Weight Alternative
(acre-feet per year)**

Water Source	Equal-Weight Alternative		
	Compact Development	Jobs Emphasis	PC Env Review
Supplies			
Patterson Irrigation District	4,631	6,782	9,744
West Stanislaus Irrigation District	2,534	3,495	4,295
Del Puerto Water District	1,063	2,101	1,884
City of Patterson	8,300	8,300	8,300
Recycled Water	4,706	5,562	6,346
Conservation	3,595	4,941	5,462
Groundwater Recharge/Spreading Basins	7,530	9,502	11,285
Total Available Supplies:	32,088	40,682	4,7316
Total Demand (20-year and 40 year buildout Growth Boundaries Combined:	17,973	24,705	27,311
Shortfall (excess)	(14,115)	(15,977)	(20,006)
Source: The H2O Group, 2010, Table 3-8.			

**Table 5.4-17: Multiple Dry Year Supply and Demand For Each Equal-Weight Alternative
(acre-feet per year)**

Water Source	Equal-Weight Alternative		
	Compact Development	Jobs Emphasis	PC Env Review
Supplies			
Patterson Irrigation District	3,503	5,448	7,827
West Stanislaus Irrigation District	1,525	2,104	2,585
Del Puerto Water District	425	840	754
City of Patterson	8,300	8,300	8,300
Recycled Water	4,706	5,562	6,346
Conservation	3,595	4,941	5,462
Groundwater Recharge/Spreading Basins	7,530	9,502	11,285
Total Available Supplies:	29,584	36,697	42,560
Total Demand (20-year and 40 year buildout Growth Boundaries Combined:	17,973	24,705	27,311
Shortfall (excess)	(11,611)	(11,991)	(15,249)
Source: The H2O Group, 2010, Table 3-10.			

**Table 5.4-18: Extremely Dry Year Supply and Demand For Each
Equal-Weight Alternative
(acre-feet per year)**

Water Source	Equal-Weight Alternative		
	Compact Development	Jobs Emphasis	PC Env Review
Supplies			
Patterson Irrigation District	2,145	3,335	4,792
West Stanislaus Irrigation District	800	1,103	1,355
Del Puerto Water District	0	0	0
City of Patterson	8,300	8,300	8,300
Recycled Water	4,706	5,562	6,346
Conservation	3,595	4,941	5,462
Groundwater Recharge/Spreading Basins	7,530	9,502	11,285
Total Available Supplies:	27,075	32,743	37,541
Total Demand At Buildout (20-year and 40 year buildout Growth Boundaries Combined):	17,973	24,705	27,311
Shortfall (excess)	(9,101)	(8,038)	(10,230)
Source: The H2O Group, 2010, Table 3-12.			

Uncertainties Associated With the Recommended Water Supply Strategy

The primary uncertainty associated with the water supply strategy outlined above relates to the willingness of the water purveyors currently providing water to properties within the Study Area to continue to provide water either to the property owners or to the City to serve these properties. Under this program, the responsibility for acquiring the water rights rests with the property owner/proponent of development. Should the water purveyors choose not to sell the water to the property owner or to the City, the development could not go forward unless and until a suitable water supply alternative is provided. The potential environmental consequences of secondary water supply strategies are discussed below.

In addition, the potential impacts of securing a secondary source of water described in Table 5.4-19 represent significant uncertainties relative to the resources that could be adversely impacted.

Environmental Effects Associated with Secondary Water Supply Opportunities

Alternative sources of water to serve the City were investigated in 2006 by The H2O Group as part of the 2006 City of Patterson Water Supply Study. That study considered four alternatives to meeting the City's future water supply needs.

1. Surface Water From the California Aqueduct or the Delta Mendota Canal, With Untreated Groundwater For Backup

Under this alternative, the City would use surface water from either the California Aqueduct or the Delta Mendota Canal as its primary source and would rely on untreated groundwater for backup when surface water is unavailable. The study concluded that if the level of total dissolved solids (TDS) in the groundwater exceed safe drinking water standards, the California Department of Health Services would not permit this alternative unless the water were treated. Studies completed prior to 2006 suggested that additional surface water could be purchased for periods of below-normal deliveries. However, because of the added cost associated with treatment and acquiring supplemental water, this alternative was rejected as infeasible.

2. Groundwater Only

Under this alternative groundwater would be treated to meet safe drinking water standards and used as the City's sole source of water supply. However, limitations associated with the safe yield of the groundwater basin underlying the City suggest that groundwater was sufficient to serve the City's 1992 General Plan area, only, and that additional supplies would be needed to serve urban development beyond the 1992 Plan. This was considered a viable water supply, but of limited quantity to serve future development.

3. Surface Water As Primary Source, Supplemented By Treated Groundwater

This alternative uses surface water as the primary source and a mix of treated groundwater and blended raw groundwater as a supplemental source. During periods of surface water outage or reductions, additional groundwater supplies would be used. In the most severe conditions, groundwater would be the sole source of water with 60% of the water treated and 40% raw groundwater blend. This was considered a viable alternative.

4. Groundwater As The Primary Source Supplemented By Treated Surface Water

Under this alternative treated and blended groundwater (60% treated, 40% raw) would serve as the primary source and surface water would be used to supplement groundwater. Surface water would be maximized when available and during periods of the year when salt levels are lowest in the Sacramento Delta (January – August). This alternative was considered feasible.

The 2006 Study recommended the City pursue Alternatives 3 or 4 since both represent the highest degree of water quality and reliability.

The purchase and delivery of any surface water supplies to Patterson could only be utilized in the near term for groundwater recharge or for nonpotable uses as the City does not currently have a water treatment facility. Regardless of the Equal-Weight Alternative, the water supply program outlined above would require extensive new and expanded infrastructure to transport water to the city, including canals, pipelines, pump stations, and transmission lines. In addition, the construction and operation of a new water treatment plant would be required.

Table 5.4-19 summarizes the potential environmental impacts that could occur from planned and other future new water supply options that could be pursued to serve the Study Area.

Impacts associated with improvements to the wastewater treatment plant to increase the supply of recycled water are discussed in section 5.5 - Wastewater. Potential health risks associated with the use of recycled water for landscape irrigation are discussed in section 5.12 - Hazards and Hazardous Materials.

Table 5.4-19: Potential Environmental Effects of Secondary Water Supply Program	
Surface water Hydrology	Changes in the magnitude and timing of flows in affected streams;
Water Quality	Changes in stream and reservoir/lake temperature, dissolved oxygen levels, turbidity, total suspended solids, and other water quality parameters of concern during construction and operation of new facilities.
Fishery Resources	Change in the amount and quality of fishery habitat in affected streams, and potential fish entrainment at possible diversion sites.
Wetlands and Riparian Habitat	Changes in the amount or functions and values of various types of wetlands from the construction of new facilities or in riparian areas from changes in the operation of stream flows. Riparian habitat could be affected by hydrology changes or new construction and is especially important habitat for wildlife and botanical species.
Botanical Resources	Disturbance to rare plants and their habitat and other types of vegetation from construction activities or changes in hydrology along streams.
Wildlife Resources	Changes in the amount and quality of affected wildlife habitat near affected streams and where appurtenant facilities would be located.
Geology and Soils	Increase in erosion and sedimentation from construction activities; change in sediment transport in streams; geologic hazards could cause problems for new facilities and their operators if they are not sited carefully.
Recreation	Changes in the quantity or quality of recreation opportunities; some impacts could also occur during construction and operation of new conveyance, treatment, storage, and pumping facilities.
Visual Resources	Changes in stream flows and the addition of new project facilities could affect the visual environment. New pipelines, pumping stations, or transmission lines near or in residential areas or highly visited areas would cause negative impacts.
Agriculture	Some irrigated land or grazing land could be taken out of production where project conveyance facilities need to be located and to accommodate growth. The availability of water supplies for agricultural uses could decrease.
Cultural Resources	Historic, prehistoric, and ethnographic resources could be affected by hydrology changes or the construction and maintenance of new facilities.
Compatibility with Existing Land Uses and Consistency With Adopted Plans and Policies	Some new project facilities may not be compatible with surrounding land uses or may be inconsistent with related federal, state, tribal, and local plans and policies (including those of the U.S. Fish and Wildlife Service and California Department of Fish and Game).
Mineral Resources	New project facilities could interfere with the extraction of minerals at known or yet-to-be discovered mineral sites.
Public Utilities	The routing and siting of new project facilities could interfere with the operation or maintenance of existing or planned public utilities, including communication and energy infrastructure.
Socioeconomic Resources	Water service customers of the City and others would enjoy the socioeconomic benefits associated with a more reliable water supply and related economic growth. Water rates would likely increase to help pay for new facilities. Facility construction would cause short-term and beneficial employment and income impacts. Energy or mineral impacts would also cause related socioeconomic effects.
Air Quality and Noise	Air emissions and excessive noise from construction equipment and traffic could occur during the construction phase of new projects. New pumping stations would likely cause adverse noise impacts for nearby residents. This could also result in additional greenhouse gas emissions.
Transportation	Local roads would experience traffic increases during construction.
Public Health and Safety	Construction activities could create some short-term safety hazards.
Growth Inducing Effects	New system infrastructure and water supply projects would likely cause growth-inducing impacts.

The recommended policies and implementation measures described above would ensure that new development under each of the Equal-Weight Alternatives would not proceed without verification and determination that an adequate water supply exists. However, it is speculative to state that a reliable water supply source would be available to serve buildout of the entire Study Area due to the significant obstacles and costs associated with obtaining surface water supplies from the local water purveyors. In addition, the water supply strategy outlined for each of the Equal-Weight Alternatives would contribute to significant environmental impacts (see Table 5.4-19) associated with planned water supply projects as well as other potential future water supply sources. Given these conditions, this impact is considered **significant and unavoidable**.

Additional Mitigation

No feasible mitigation is available.

Construction of Water Supply Infrastructure

Impact 5.4-2 Supplying water to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40 year buildout growth boundaries will require the extension of water supply conveyance infrastructure into previously un-served areas. This impact is considered potentially significant.

The City does not currently supply water to areas outside the City limits; land within the Study Area is largely in agricultural use and is supplied by the Patterson Irrigation District, the West Stanislaus Irrigation District, and the Del Puerto Water District, or from on-site wells. Supplying water to expansion areas will require the construction of water supply infrastructure that includes water lines, wells, storage tanks, booster pumps, pressure reducing valves, one or more water treatment plants, and a groundwater recharge basin. Construction of water supply infrastructure would be subject to project-specific environmental review. Potential construction-related impacts include:

- Air quality: emissions associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources can be found in Section 5.10.
- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use. Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.

- Traffic: construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- Water quality: earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- Geology and Soils: construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9-Geology and Soils.

The water distribution facilities to be constructed would be consistent with the City's existing water distribution infrastructure. Accordingly, implementation of the additional distribution system would complement, rather than adversely impact, the City's existing water supply system.

A precise location for a water treatment facility (or facilities) has not been identified at this time. However, it is expected to be constructed on agricultural land within the Study Area that currently provides some measure of biological resource value. Impacts associated the permanent loss of agricultural land are discussed under impact 5.11-1 of section 5.11 Agricultural Resources. Impacts associated with biological resources are discussed in Section 5.10 Biological Resources. Therefore the construction of water supply infrastructure is considered a **potentially significant impact**.

Mitigation Provided By Existing Regulations

Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Draft Policy Document Response

Policies

- AR-1.3 CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- AQ-1.4 Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AR-5.1 Particulates from grading.** The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

NR-1.3 Sedimentation. The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.

HS-2.9 Prevention of siltation. The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.

Implementation Measures

AR-1 Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.

AR-2 Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.

HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.

PS-6 New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

PS-7 The City shall require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State

law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Recommended Additional Mitigation

The infrastructure improvements necessary to serve each of the Equal-Weight Alternatives are shown on Figures 5.4-3, 5.4-4 and 5.4-5. New development shall be required to either construct the infrastructure necessary to serve such development and/or pay development impact fees that may be adopted by the City to fund these improvements in accordance with the following recommended implementation measure.

- PS-14 The City shall require new development to implement relevant portions of the May, 2010 Water Supply Analysis by:
- a. Installation of improvements necessary to serve such development, and/or
 - b. By the payment of in-lieu development impact fees that may be established from time to time by the City to fund water supply improvements required for new development.

In addition, recommended mitigation AR-6 in section 5.7-Air Quality and Climate Change, and measure HS-10 in Section 5.10-Noise, require the following:

- AR-6 The City shall require all of the following as a condition of project approval:
- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
 - All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
 - All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
 - With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
 - When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.

- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track-out (earth material deposited on City streets by construction equipment) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activity when winds exceed 20 mph; and
- Limit area subject to excavation, grading, and other construction activity at any one time. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

HS-10 The City shall require the following as a condition of project approval to mitigate the adverse noise effects of construction-related activities:

- Construction activities shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. on Saturday, with no construction on Sundays or federal and state holidays; minor construction equipment servicing and maintenance shall be exempted from this restriction.
- During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
- Stationary noise sources and staging areas shall be located as far as is feasible from existing residences, or contractors shall be required to provide additional noise-reducing engine enclosures (with the goal of achieving approximately 10 dBA of reduction compared to uncontrolled engines).
- Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.
- If for construction purposes, locating stationary construction equipment near existing residential uses is required, an eight-foot-tall sound rated fence should be erected between the equipment and the sensitive receptor. The fence should be located as close to the equipment as is feasible.
- Construction vehicle access routes shall be designed to minimize the impact on existing residences and occupied hospital facilities.
- A "construction liaison" shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Occupants and property owners of residences within 400 feet of construction activity shall be notified in writing of the construction schedule and the contact information for the construction liaison.
- A qualified acoustical engineer should be retained during the construction phase of the project to determine if the noise levels generated from construction equipment at the project site to adjacent property lines are within the standards.

Lastly, continued compliance with relevant provisions of the Clean Water Act regarding the protection of surface and groundwater quality shall ensure impacts to water quality associated with development accommodated by any of the Equal-Weight alternatives will be less than significant. Specifically:

- Compliance with the City's Small MS4 General Permit Best Management Practices before, during and after construction; Such BMPs include:
 - Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
 - Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
 - Providing a central location for concrete washout and performing routine maintenance.
 - Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
 - Covering and/or containing stockpiled materials and overall good housekeeping on the site.
- For projects disturbing more than one acre of land during construction continuing to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. Under the provisions of the City's General Permit, a developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of water supply infrastructure. In addition, the construction of water facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of water supply facilities. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new water supply infrastructure will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

Additional Mitigation

None available.

Figure 5.4-3: Water System Improvements Necessary to Serve the Compact Development Alternative

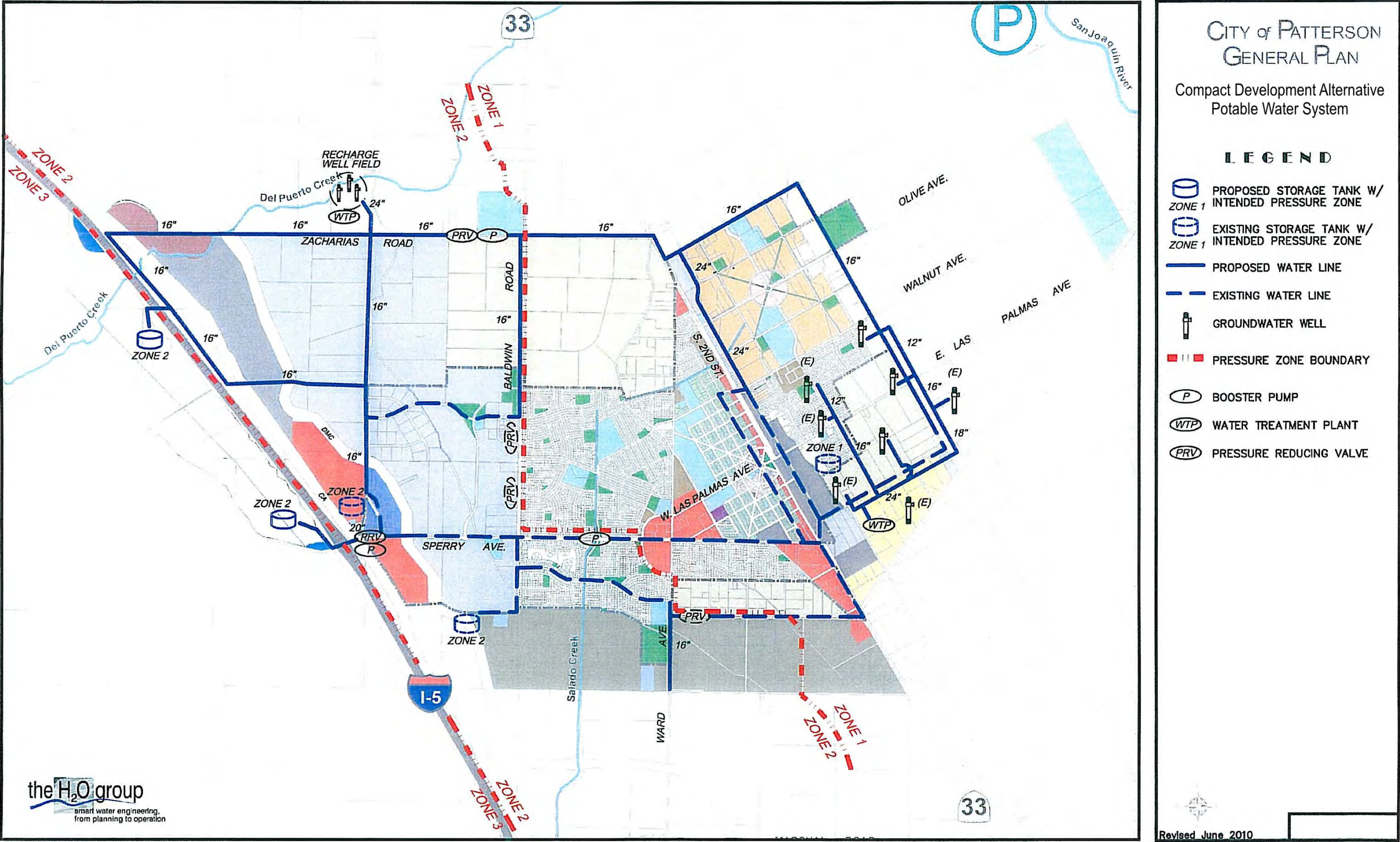


Figure 5.4-4: Water System Improvements Necessary to Serve the Jobs Emphasis Alternative

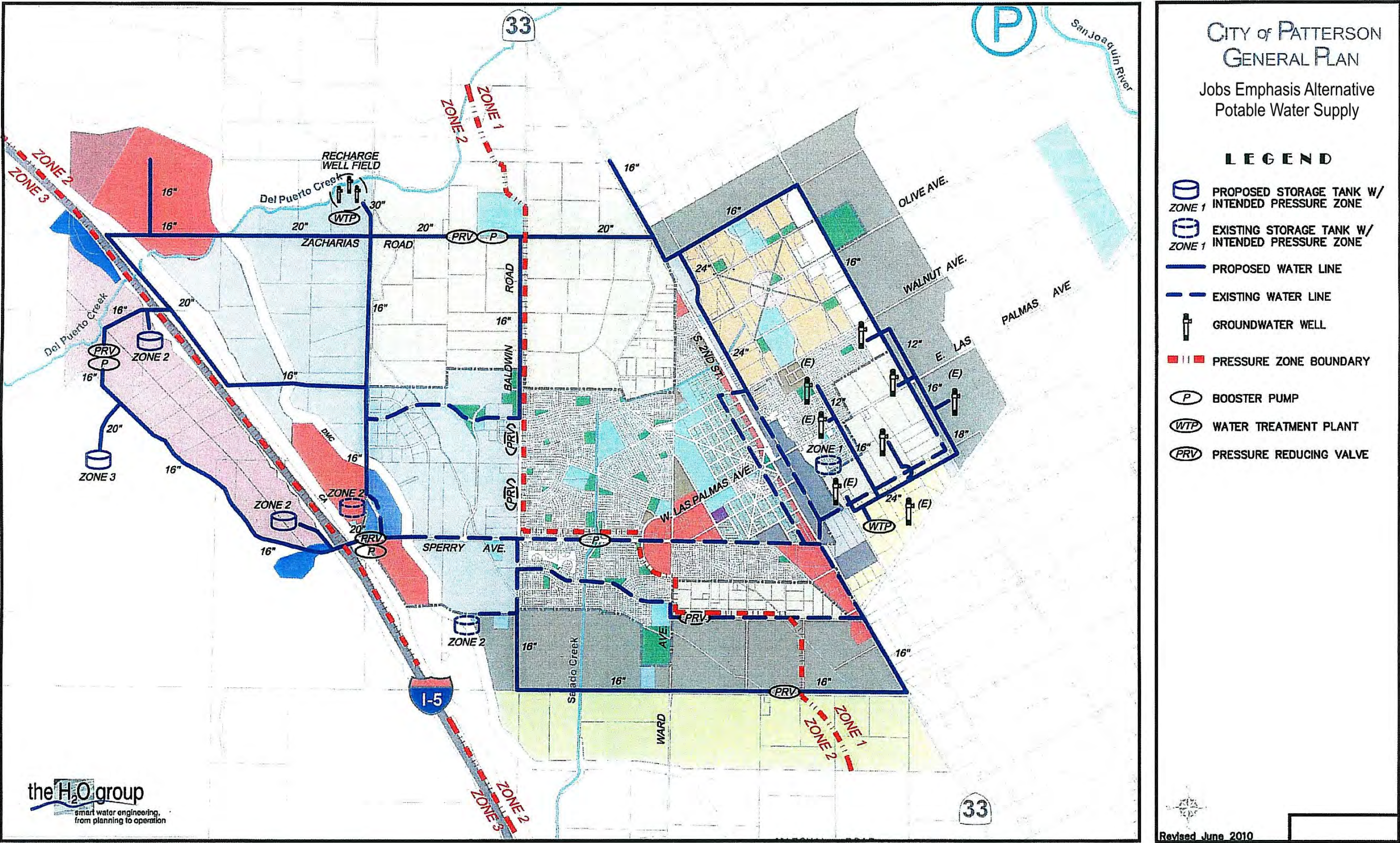
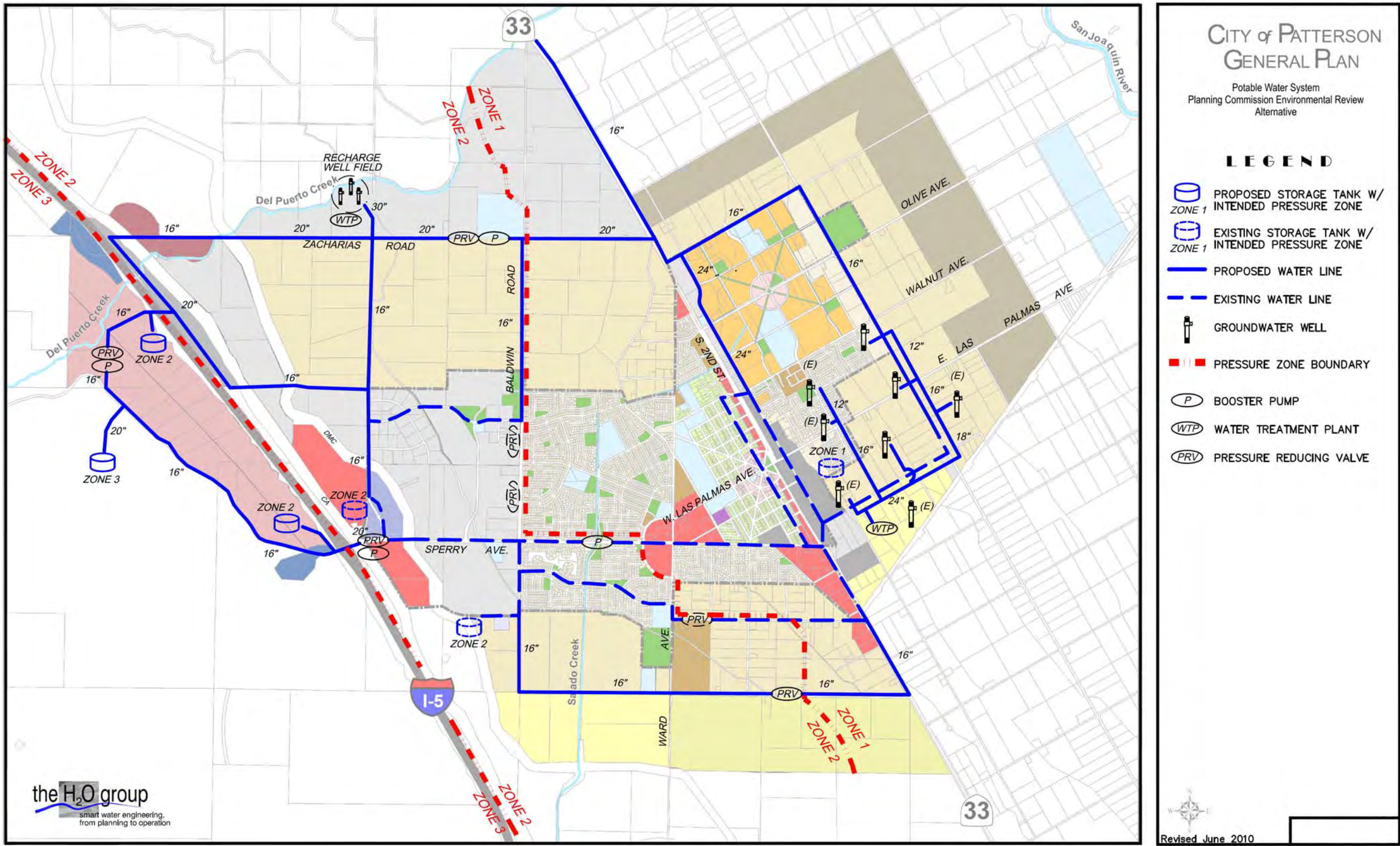


Figure 5.4-5: Water System Improvements Necessary to Serve the Planning Commission Environmental Review Alternative



Impacts to Surrounding Wells from Increased Groundwater Pumping

Impact 5.4-3 Pumping groundwater to serve the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives for the 20-year and 40 year buildout growth boundaries could create one or more “cones of depression” beneath the City’s wells. This impact is considered potentially significant.

When wells draw water from an aquifer, it results in a decline in the local water table surrounding the well. The pattern or shape of declining water resembles a cone, thus is often referred to as a “cone of depression.” The shape of the cone is a function of aquifer characteristics, like transmissivity, homogeneity and depth. This drawdown effect is normal, and an expected result of pumping. The cone will also grow in depth and radius with time as the well pump continues to draw water from the well. In a confined aquifer, the degree of drawdown declines rapidly with increasing distance from the well. When wells are constructed in the same vicinity, there is potential that the cone developed by each well can overlap, causing a condition known as “mutual interference.” When mutual interference occurs, the efficiency of each well is diminished, and will typically reduce total well production of both wells. Adding additional wells can exacerbate this condition. Thus it is important that the construction and spacing of multiple wells be carefully analyzed to ensure the most efficient system and long-term operating cost.

A severe cone of depression could cause land subsidence on the surface above the cone. As groundwater is drawn down, the clays in the soil matrix can become compacted, causing the land surface above to subside. The City’s 2006 groundwater study noted that subsidence in the area of the City’s wells is possible³². Maximum subsidence in the well field is estimated to be between one half foot and one foot and less than one-half foot beyond one-half mile from the well.

Subsidence, if sufficiently severe, could cause property damage to structures and rigid surfaces on the overlying land. Because most of the wells are located on agricultural land, however, the risk of damage to structures is relatively low. Subsidence could also damage the wells themselves, by causing well casings to collapse.

If groundwater pumping is not properly managed, there is a greater risk that these impacts could manifest and the greater their potential severity. If groundwater pumping to support buildout of the Equal-Weight Alternatives were to create a severe cone of depression, this would be a significant impact.

Use of the upper aquifer could interfere with the existing wells used by individual groundwater users in areas near the City. The likelihood of interfering with other groundwater uses is reduced substantially by several factors. Local agricultural and domestic groundwater users rely on the shallow, unconfined aquifer, which reduces their well installation and operation costs. The City of Patterson prohibits the use of private wells for domestic or irrigation use. Thus, privately owned well locations are outside of the City limits. When sites are annexed into the City, they are required to connect to the City water system, and the private wells must be abandoned. Therefore, if the City uses water from the upper aquifer, it is not anticipated to have a measurable impact on private use of that aquifer³³. It is not known, however, that no existing wells would be affected by new City wells pumping from both the unconfined (upper) and the confined (lower) aquifer. Because this is unknown, impacts to other wells are considered potentially significant.

³² City of Patterson, 2000 Urban Water Management Plan, Appendix D, p. 16.

³³ H2O Group, WSA, July 2006, p. 14.

Draft Policy Document Response

Policies

- NR-1.8 Well monitoring.** The City shall regularly monitor water quality in City wells for evidence of toxics, saltwater intrusion, and other contaminants.

Implementation Measures

- PS-1** The City shall review and periodically update the City's Water Master Plan and Urban Water Management Plan consistent with the land use patterns and densities/intensities specified in the General Plan.

Additional Recommended Mitigation

Recommended Additional Policy

- PS-1.12 Affect of City Wells On Surrounding Wells.** If, in the unlikely event that an existing user of the confined aquifer finds its well affected by the City's pumping, the City shall compensate that user for the cost of deepening the pump setting and the increased cost of operating the well to draw water from greater depths. New development in the City's sphere of influence shall be required to pay its fair share of such costs.

Recommend Implementation Measures

- PS-15** The City shall sample groundwater quality semiannually to assess water quality and shall conduct additional studies to better understand the direction and rate of groundwater flow in the confined aquifer. These investigations will allow the City to optimize the arrangement of new water supply wells to maximize water quality and minimize the severity of the resulting cone of depression and associated impacts. To the extent feasible, new wells shall be located at greater spacings to reduce the cone of depression and maximize their distance from nearby users. This would reduce the risk and/or severity of the potential impacts from subsidence discussed above.
- PS-16** The City shall implement a subsidence monitoring program. Subsidence shall be monitored annually at each well and new wells shall be designed to prevent damage to the wells from subsidence as described in the groundwater study.

Although the policies and implementation measures recommended above will help minimize the potential impact to existing wells within the Study Area, the potential impact to surrounding wells cannot be determined. With application of the above measures, potential impacts associated with cones of depression are considered **significant and unavoidable**.

Additional Mitigation

No additional mitigation is available.

Disposal of Brine from Water Treatment

Impact 5.4-4 Increased reliance on groundwater and surface water to serve any of the Equal-Weight Alternatives may necessitate the treatment of these water sources. The treatment of groundwater or surface water will require the disposal of concentrated brine created as a byproduct of such treatment and disposal of an additional waste product that may require special disposal methods. This impact is considered potentially significant.

Groundwater Treatment

Regardless of the Equal-Weight Alternative chosen, the water supply program recommended for the City will involve the increased pumping of groundwater. As discussed in the Setting, above, there is a limited amount of groundwater underlying the City that meets safe drinking water standards, and treatment will be needed. The only treatment the City currently provides is the addition of a simple disinfectant. Problems with local groundwater include moderate salinity, and only recently, higher levels of nitrates were found in one City well. Depending on the location and depth of the well, salinity can range from 450 mg/l to 3,500 mg/l TDS.

Treatment objectives for a groundwater treatment plant include:

- Disinfection for general microbial quality
- Control of hardness and TDS (400 mg/L TDS and 150 mg/L hardness)
- Control of nitrates
- Control of specific organic contaminants

The primary goal of groundwater treatment is the removal of salinity. Salinity consists of several positive and negative ions that naturally occur in local groundwater including calcium, magnesium, sulfides, bicarbonates, iron, manganese, chlorides, and sodium. Although together these minerals are called “total dissolved solids”, or TDS. The State of California limits TDS to 1,000 mg/l, but has a “recommended” limit of 500 mg/l. However, individual minerals at high concentrations can create concerns. For example, salts of calcium and magnesium create “hardness”, which causes scale and water spots. The groundwater has very high hardness (270 to 490 mg/l as CaCO₃) and alkalinity (91 to 260 mg/L as CaCO₃). Sulfate levels are also elevated. Sulfides can cause water to taste bitter and create a laxative effect when consumed in high concentrations.

Currently, many residents use home water softeners to reduce hardness levels. These “self-generating” water conditioners use regular table salt (NaCl) to remove hardness ions. Two problems with softeners include: (1) overall salinity is not reduced since as hardness is removed (Ca and Mg ions), sodium is added, and (2) salt used in the softeners is discharged to the City’s wastewater treatment system, creating restrictions of wastewater discharge. The State Regional Water Quality Control Board will be aggressively addressing salinity in wastewater discharge in the future. The community’s use of water softeners makes the City a “net importer” of salinity to the area. The City is pursuing alternatives to reduce salinity in its waste discharge, including restrictions on the use of water softeners.

Treatment of Surface Water

In general, treatment objectives for a surface water treatment plant include:

- Turbidity and pathogen control
- Disinfection for potability of water

- Control of organic precursors for disinfection by-products control
- Control of specific organic contaminants and taste and odor causing compounds

Treatment of surface water is a multi-staged process designed to remove contamination that can result in acute and chronic illness, taste and odor, and water characteristics that can cause water system corrosion. State and federal guidelines require a “multi-barrier” approach to provide greater reliability and safety. Failure in one process would not necessarily place the public at risk. These “safety nets” consist of a combination of physical and chemical treatment. All together, these processes are commonly called the “treatment train”.

Processes in a typical treatment train for federal or state project water consist of the following:

- Pretreatment
- Clarification (Coagulation/Flocculation/Sedimentation)
- Filtration
- DBP Precursor Removal
- Disinfection
- pH Adjustment

These processes involve treatments to the water with filters and/or chemicals that do not result in a by-product.

The treatment of groundwater or surface water would require construction of a centralized water treatment facility providing desalination of the water. The City is considering four water treatment technologies: reverse osmosis, membrane treatment, ion-exchange, and lime softening.

Reverse Osmosis. Reverse osmosis was developed as a water treatment method more than 40 years ago. The process first arose as a technique of desalinating seawater. Reverse osmosis, simply stated, is the opposite of the natural osmosis process of water. Osmosis is the name for the tendency of water to migrate from a weaker saline solution to a stronger saline solution, gradually equalizing the saline composition of each solution when a semi-permeable membrane separates the two solutions. In reverse osmosis, water is forced to move from a stronger saline solution to a weaker solution, again through a semi-permeable membrane. Because molecules of salt are physically larger than water molecules, the membrane blocks the passage of salt particles. The end result is desalinated water on one side of the membrane and a highly concentrated, saline solution of water on the other side.

Membrane Treatment. Membrane technology utilizes a semipermeable membrane for the separation of suspended and dissolved solids from water. There are two basic types of membrane separation processes: pressure-driven and electrically-driven. Pressure-driven processes use hydraulic pressure to force water molecules through the membranes. Impurities are retained and concentrate in the feedwater, which becomes the reject water or concentrate stream. The permeate, the water that passes through the membrane, is recovered as product or pure water. In the electrically-driven membrane process, electric current is used to move ions across the membrane, leaving purified water behind. In this process, the ions are collected in the concentrate stream for disposal. The product water is the purified feedwater.

Ion Exchange. The term “ion exchange” refers to a in which water flows through a bed of ion exchange material and undesirable ions are removed and replaced with less objectionable ones. Ion exchange processes are versatile; specific types of ions can be removed from water depending on the choice of exchange material and regenerant used.

Lime Softening. Lime softening is a method of water softening where hydrated lime is added to water in order to precipitate out hardening agents, which are then removed by sedimentation or filtration.

Water to be treated would need to be piped from wellheads to this facility. Any of the treatment systems would produce concentrated brine, which could be as high as 1.5 million gallons per day (1,680 AF) per year of brine. The amount of brine would be the same for each Equal-Weight Alternative because each alternative will necessitate the full production of groundwater resources available to the City. Potential impacts associated with the construction of water supply infrastructure, including a water treatment plant (or plants) are discussed under impact 5.4-2, above.

Brine Disposal

The brine produced by water treatment would require disposal. Brine processing can be accomplished through drying beds, mechanical dewatering, and/or blending with other wastewaters. Use of evaporative drying beds and lagoons alone would require many acres of land (350 acres - 400 acres). In lieu of an ocean discharge, membrane reject is often treated to reduce the volume of brine residuals, or in combination with other processing solutions to minimize land use, operating expenses, and to meet discharge requirements.

Evaporation would require the City to purchase new property and construct evaporation ponds with impervious linings to prevent percolation of the brine into the shallow aquifer. After evaporation, salts would need to be collected and transported to an appropriate solid-waste disposal facility. If evaporated, the 1,680 AF annually of brine would produce approximately 31 tons of salts per year that would require proper disposal. As discussed under impact 5.3-6 of Section 5.3 – Public Services and Utilities, the additional 31 tons per year will contribute to a **cumulatively considerable adverse impact** on the capacity of the landfill.

A common process is to concentrate the brine through use of additional mechanical and non-mechanical processes. Based on experience of other similar projects, a cost effective membrane residuals treatment process could consist of mechanical processes, including (additional) high-pressure reverse osmosis (HPRO) or electrodialysis reversal (EDR), followed by mechanical vapor recompression evaporators or crystallizers. Non-mechanical processes may include solar or wind induced evaporation and chemical precipitation. The end process would include a highly concentrated brine solution with lined-pond evaporation. The dried solids would be hauled off every 10-20 years to a municipal landfill.

There are two possible disposal sites: the Fink Road Landfill and the Kettleman Hills landfill. The Fink Road Landfill would be used if disposal of this type of waste would be accepted there. If the waste salts were considered hazardous and could not be disposed of at the Fink Road Landfill, they would need to be trucked to Kettleman City, the location of the nearest landfill that accepts hazardous waste. Thus, disposal of the dried salts would not be a significant impact. While the additional vehicle miles traveled (approximately 260 miles per trip) would incrementally increase air emissions in the San Joaquin Air Pollution Control District, the increase would be marginal and would not substantially change the already-significant traffic impacts caused by the Equal-Weight Alternatives.

It is proposed that some of the lagoon space at the City's wastewater treatment plant could be used for membrane concentrate processing (around 20-40 acres). The City is also in discussions with the RWQCB regarding brine disposal and salt management solutions, including brine reject from proposed groundwater treatment processes. Emerging technologies may also offer solutions to brine handling.

Under any of the disposal methods, the brine would need to be piped from the treatment facility to the disposal site. Laying of that pipeline and the pipeline from wellheads to the treatment facility would entail physical impacts that would be evaluated in project-specific environmental review after the

treatment disposal systems have been designed, though it is anticipated that the pipelines would be installed in existing rights-of-way and impacts would be similar to other pipeline construction, including temporary noise increases and air quality emissions. Construction impacts associated with water supply infrastructure are discussed under impact 5.4-2 in section 5.4-Water Supply.

General Plan Policy Document Response

Policies

- PS-4.5 Hazardous waste disposal.** The City shall cooperate with the Stanislaus County Certified Unified Program Agency (CUPA) and support the safe transportation, handling, recycling, and disposal of hazardous materials.
- PS-9.4 Facility clustering.** The City shall promote the clustering of public and quasi-public facilities such as schools, parks, libraries, child care facilities, and community activity centers. The City shall promote joint-use of public facilities, and agreements for sharing costs and operational responsibilities among public service providers.

Implementation Measures

- PS-10** The City shall prepare, adopt, and implement a Source Reduction and Recycling Program which includes the following components:
- a. Waste Characterization;
 - b. Source Reduction;
 - c. Recycling;
 - d. Composting and the feasibility of establishing a composting center;
 - e. Solid Waste Facility Capacity;
 - f. Education and Public Information;
 - g. Funding, including grants;
 - h. Special Waste;
 - i. Household Hazardous Waste.
 - j. Mobile events to promote recycling;

The above policies and implementation measures will reduce potential impacts associated with the treatment of water to a **less than significant level**.

Additional Recommended Mitigation

None required.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The setting for cumulative impacts is the current service area of the City as well as the service area for the Del Puerto Water District, West Stanislaus Irrigation District and the Patterson Irrigation District.

Impacts to Agricultural Water Supply

Impact 5.4-5 Implementation of any of the Equal-Weight Alternatives would result in the cumulative reduction of water available for agricultural operations in the area. This impact is considered cumulatively considerable.

Implementation of the water supply program recommended under impact 5.4-1 would result in the use of irrigation water for urban uses that include landscape irrigation and/or groundwater recharge. Although the amount of irrigation water diverted from agricultural use to urban uses will be less than the quantity currently delivered to properties within the Study Area, as shown on table 5.4-1, the result of implementation of any of the Equal-Weight Alternatives will be a net decrease in the amount of irrigation water available for agricultural uses delivered by the Central Valley Project via the Patterson Irrigation District, the West Stanislaus Irrigation District and the Del Puerto Water District. The potential maximum amount diverted to urban use (Table 5.4-1) reflects the amount of water no longer available for agricultural use. This impact is considered **cumulatively considerable**.

Draft General Plan Policy Response

The policies and implementation measures recommended by the draft Policy Document discussed under Impact 5.4-1 would help reduce cumulative impacts relating to water supply. In addition, the additional policies and implementation measures recommended under Impact 5.4-1 which call for implementation of the Water Supply Program recommended under implementation measure PS-16 and as described in Appendix 5.4 will help minimize cumulative impacts to water supply by:

- Developing multiple sources of water;
- Water conservation
- Encouraging the conjunctive use of groundwater, surface water and non-potable water supplies in a manner that enhances groundwater recharge;

Although the Water Supply Program recommended for the Patterson General Plan will result in a reduction of water use by properties currently served by irrigation water, the net result will be a permanent loss of irrigation water available for agricultural use. This impact is considered **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

No feasible mitigation is available.

Impacts to Cumulative Water Supply

Impact 5.4-6 Implementation of any of the Equal-Weight Alternatives would result in the cumulative reduction of water available for all uses in the area. This impact is considered cumulatively considerable.

The cumulative condition for water supply is analyzed under Impact 5.4-1 with the General Plan demand. The City of Patterson has historically satisfied all of its demand for water from the underlying groundwater basin. The City operates nine (9) wells with a total capacity of 9,600 gallons per minute, with a projected production of about 7,500 AFY. The wells currently (2010) produce a combined 5,000 AFY³⁴. However, the local groundwater basin has production limitations, and for purposes of water supply planning it is estimated that an average of 8,300 acre feet/year of groundwater is available for City use³⁵ which (according to the City's 2006 Urban Water Management Plan) is sufficient to serve a population of about 35,000 residents. Accordingly, water demand associated with a population greater than 35,000 will require a secondary source of water.

Policies and implementation measures recommended under impact 5.4-1 set forth a program for ensuring a reliable secondary source of water is available to serve development beyond 35,000 residents. However, there are several uncertainties and associated adverse environmental impacts associated with this program and for these reasons, project and cumulative impacts associated with all three Equal Weight Alternatives are considered **cumulatively considerable and significant and unavoidable** for both the 20-year and 40-year buildout timeframes.

Draft General Plan Policy Response

The policies and implementation measures recommended by the draft Policy Document discussed under Impact 5.4-1 would help reduce cumulative impacts relating to water supply. In addition, the additional policies and implementation measures recommended under Impact 5.4-1 which call for implementation of the Water Supply Program recommended under implementation measure PS-16 and as described in Appendix 5.4 will help minimize cumulative impacts to water supply by:

- Developing multiple sources of water;
- Water conservation
- Encouraging the conjunctive use of groundwater, surface water and non-potable water supplies in a manner that enhances groundwater recharge;

Although the Water Supply Program recommended for the Patterson General Plan will result in a reduction of water use by properties currently served by irrigation water, the net result will be a permanent loss of irrigation water available for agricultural use. This impact is considered **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

No feasible mitigation is available.

³⁴ The H2O Group 2010, page 3-6.

³⁵ Net long-term use of 8,300 ac-ft/yr based on current use, development of groundwater pumping facilities, and previous groundwater studies. Groundwater use may vary year-to-year based on water year type, surface water availability, etc.

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Person Consulted

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Mary Jo Talbot, Turlock Irrigation District, May 4, 2010.

5.5 WASTEWATER

Introduction

This section discusses existing and future wastewater flows associated with each of the Equal-Weight Alternatives, as well as improvements to the collection, treatment and disposal systems necessary to accommodate each.

Setting

The City of Patterson provides wastewater collection, treatment and disposal service for all residents, schools, commercial and industrial establishments in the City except for Patterson Frozen Foods, which has its own onsite treatment system, and a few residences, which are served by their own onsite septic tank systems. The City's wastewater system also serves the Villa Del Lago commercial development located near the I-5/Sperry Avenue interchange and the Diablo Grande Project west of the City. The City's wastewater system consists of three basic components: collection, treatment, and disposal.

Wastewater Collection

The City's wastewater collection system consists of gravity flow pipelines ranging in size from 6-inch to 33-inch diameters, typically located in City street rights-of-way. Older portions of the system, which generally serve the downtown core residential and commercial areas, were constructed before 1960. Newer developments have been connected to the system over time.

The City's existing trunk sewers (15 inches and larger) and corresponding capacities are shown on Figure 5.5-1. The main sewer line is located along Walnut Avenue where it extends from the treatment plant to just north of the downtown. The last downstream section of the trunk system as it heads toward the treatment plant has a capacity of 9.5 million gallons per day (mgd). The trunk system has sufficient capacity to serve wastewater flows expected from buildout of the 1992 General Plan.

Wastewater Treatment and Disposal

The City's wastewater treatment plant is located on a 160-acre site situated between Walnut and Las Palmas Avenues, east of Poplar Avenue and west of the San Joaquin River. The treatment facilities include a lift station, metering structure, headworks, comminuter, oxidation ditch, settling clarifiers, AIPS ponds, and sludge drying beds. The lift station is located at the terminus of Walnut Avenue where the influent (i.e., untreated wastewater) is received from the Walnut Avenue trunk sewer line into the plant.

The treatment plant provides three separate treatment processes: the South Activated Sludge Treatment System, the North Activated Sludge Treatment System, and the Advanced Integrated Pond System. The rated capacities of these three processes are listed in Table 5.5-1.

Figure 5.5-1: Wastewater Collection System Trunk Sewers

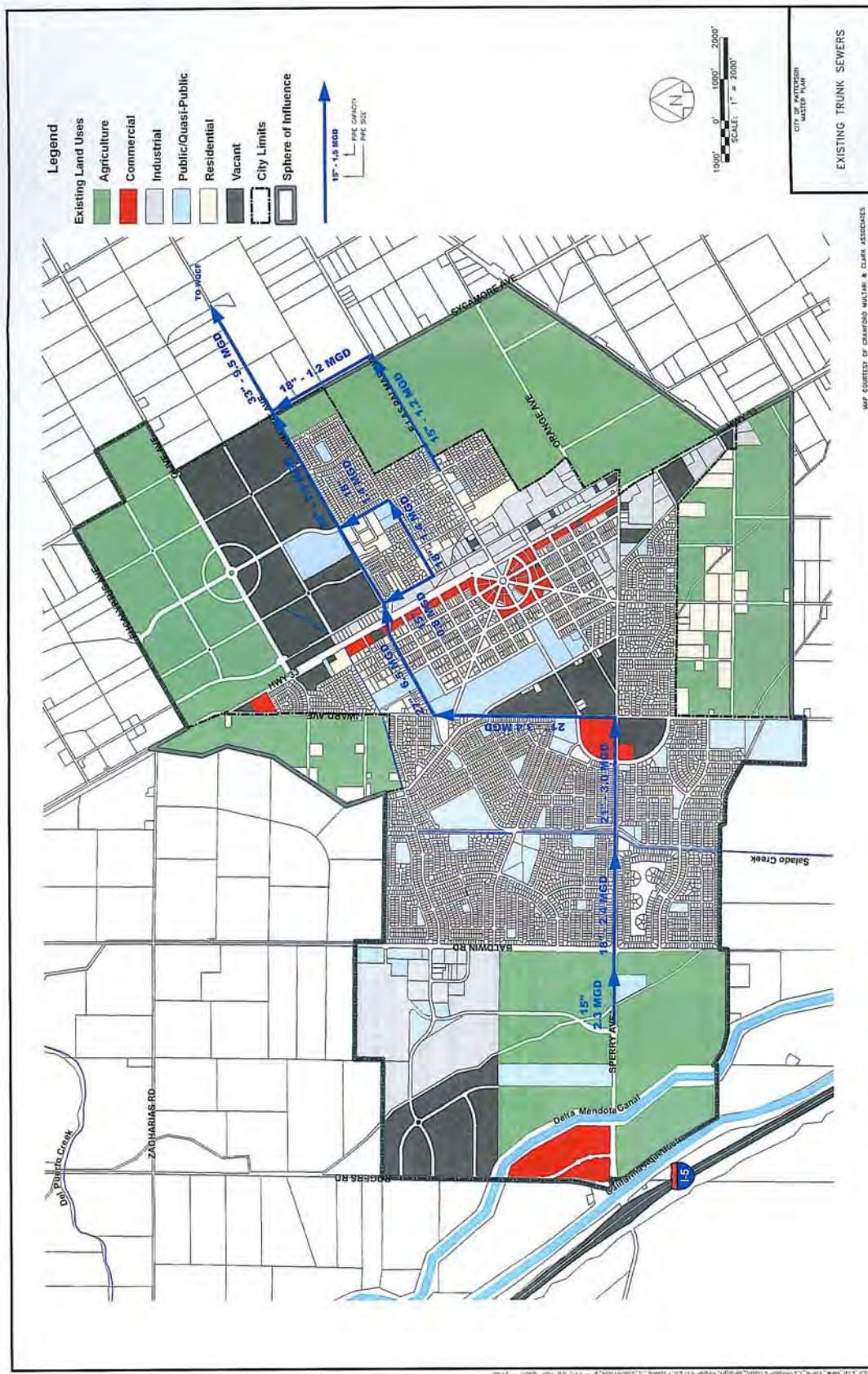


Table 5.5-1: Rated Capacities of the Three Treatment Processes	
Process	Rated Capacity (mgd)
South Activated Sludge Treatment System	1.25
North Activated Sludge Treatment System	0.8
Advanced Integrated Pond System	0.2
Total:	2.25
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010, page 14	

The plant's currently permitted capacity is 3.5 million gallons per day (mgd), and the average current volume of wastewater produced by the City is approximately 1.4 mgd. The remaining capacity is available to provide service for previously-approved expansion and to accommodate unanticipated high flow conditions. Table 5.5-2 summarizes the rated capacity of the treatment plant along with the permitted capacity and the remaining capacities in 2010.

Table 5.5-2: City of Patterson 2010 Wastewater Treatment Plant Remaining Rated Capacity and Permit Capacity (mgd)				
Rated Capacity	Maximum NPDES Capacity	2010 Average Flow	2010 Remaining Rated Capacity	2010 Remaining Permitted Capacity
2.25	3.5	1.4	0.85	2.1
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010				
Notes:				
1. MGD = million gallons per day				

There are currently 15 active separate percolation ponds for effluent disposal at the treatment plant. The total area is 109 acres and the capacity of these ponds, on an annual average disposal rate basis, is 3.38 mgd.

The treatment plant site is shown on Figure 5.5-2.

Wastewater Generation

The current (2010) average annual wastewater flow to the treatment plant is approximately 1.4 million gallons per day. The total cumulative wastewater flow projected in the City by the year 2030, including existing flows plus previously approved development, would be approximately 3.09 mgd. For purposes of projecting future wastewater flows the average annual flow rates for different land use categories are assumed to be those shown in Table 5.5-3.

Table 5.5-3: Average Annual Wastewater Flow Rate Factors		
Category	Factor	Units
Residential Average Flow	55	Gallons per capita per day
Commercial/Industrial	562	Gallons per acre per day
Public/Quasi-Public	5	Percent
Infiltration	3	Percent
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010, page 5		

Figure 5.5-2: Wastewater Treatment Plant Location

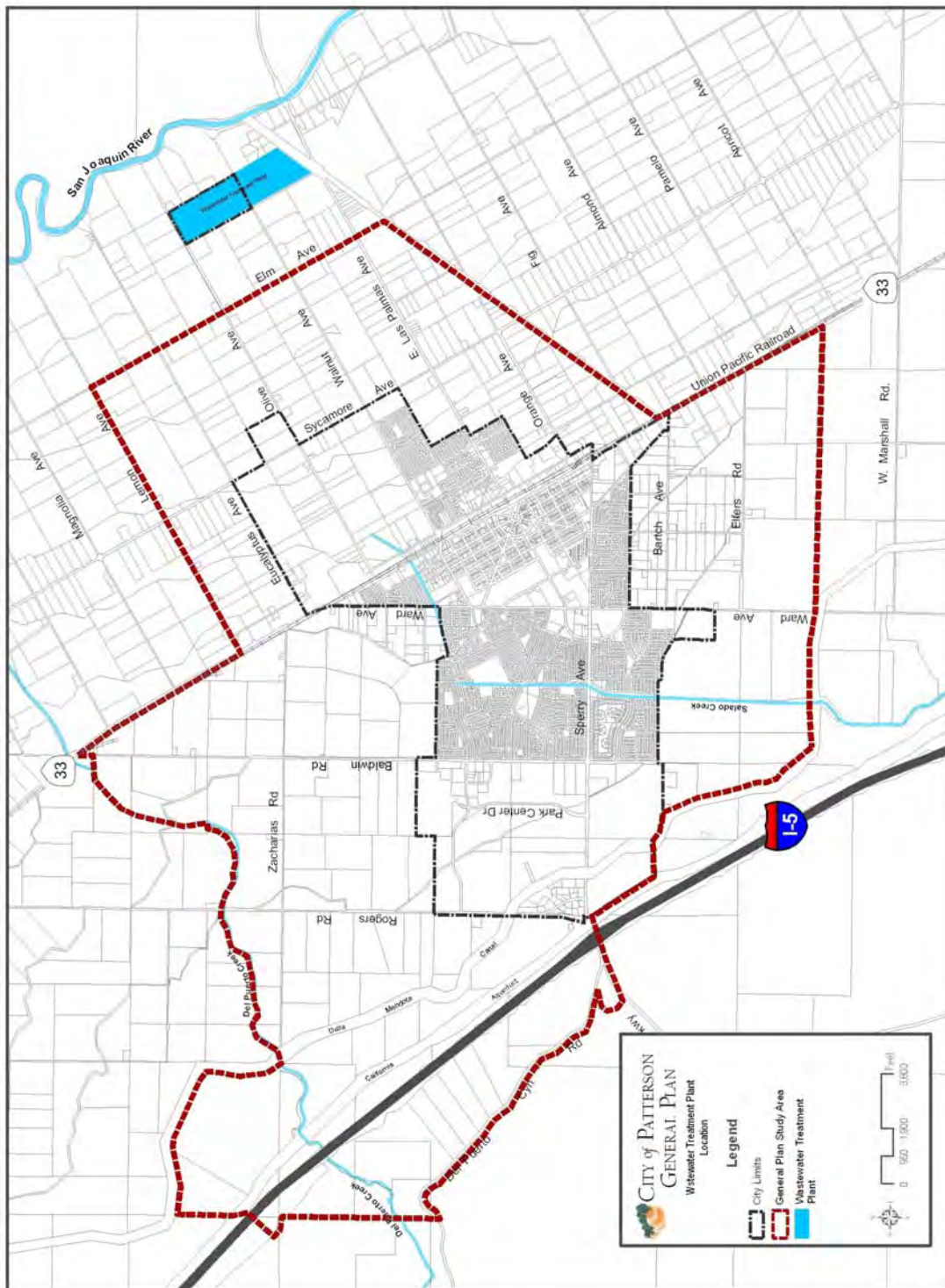
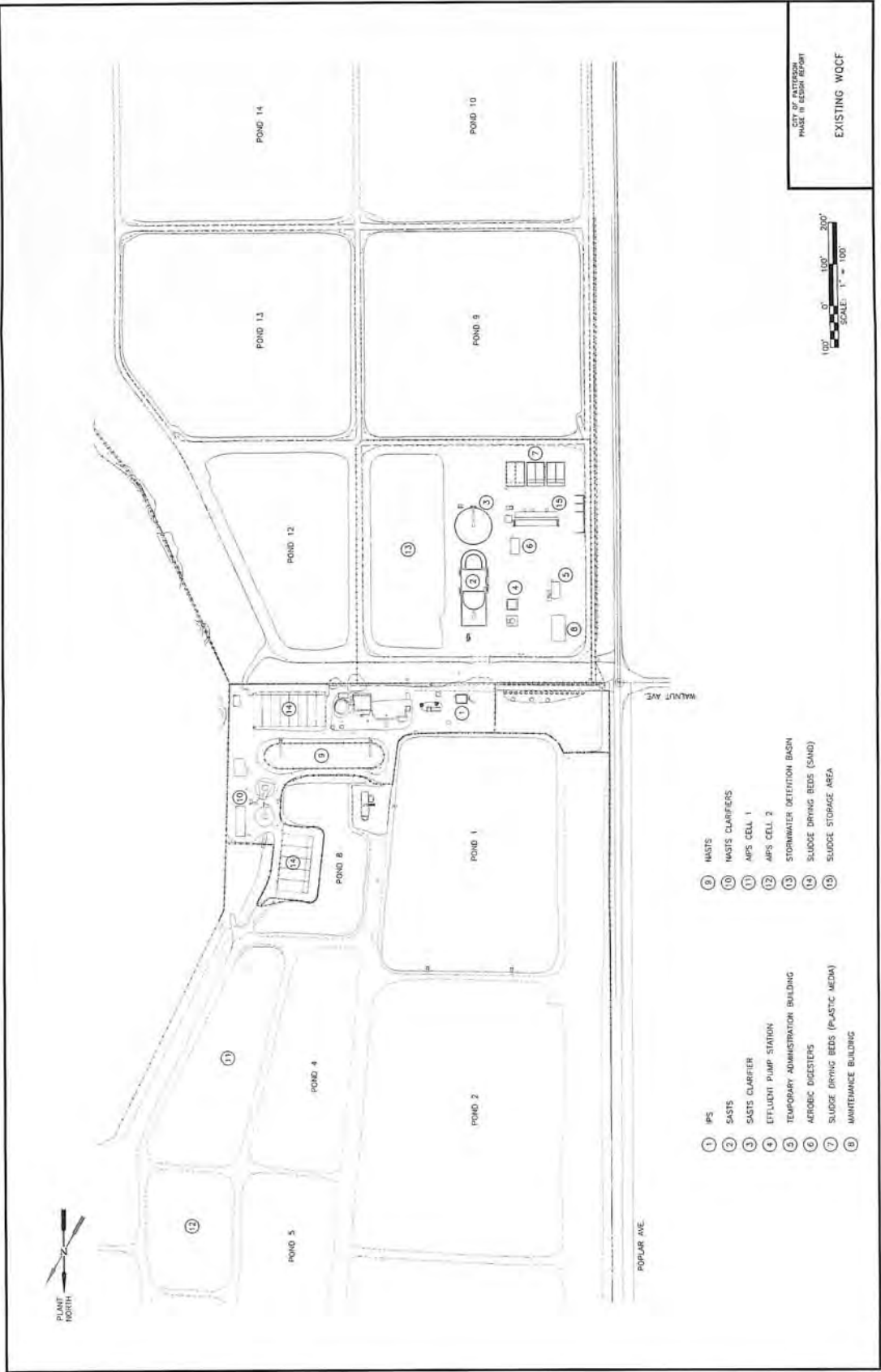


Figure 5.5-3: Wastewater Treatment Plant



Wastewater Infrastructure Improvements

In 2006, the City embarked on a program to expand its wastewater collection, treatment, and disposal system to accommodate wastewater generated by development within the City's sphere of influence. The program consisted of a 2-phase, 1 million gallon per day (1 mgd) expansion of its wastewater treatment and disposal facilities. In the near term, the City also proposed physical expansion of its collection system to serve two development proposals that were subsequently adopted: the Patterson Gardens residential project and the Keystone Pacific Business Park portion of the West Patterson Business Park Master Development Plan area.

The City has also adopted a plan to accommodate the wastewater generated by the Diablo Grande development in western Stanislaus County, and has entered into an agreement with the Western Hills Water District to do so. Flows from Diablo Grande accommodated by the City are expected to be 0.5 mgd by 2030 and 0.75 mgd by 2050.

Wastewater Collection System Improvements

To serve expected development in the western portion of the City's sphere of influence, a new sewer collection pipeline would be constructed from the intersection of Sperry Avenue and American Eagle Drive, running east under Sperry Avenue and north under Ward Avenue to the existing 27-inch line in M Street. A new sewer trunk line would be constructed from the end of the existing 27-inch sewer line in M Street. As described in the Western Expansion Area Sanitary Sewer Collection System report, the new sewer trunk line would run along M Street, cross Highway 33 and the railroad tracks, and then continue down Walnut Avenue to the wastewater treatment plant. Because the City is proposing to construct the wastewater collection lines that would be common to both Diablo Grande and development on the west side of the City 3 inches larger in diameter to accommodate flows from Diablo Grande, development on the western section of this sewer trunk line would be sized at 30 inches and the eastern section would be 36 inches in diameter. Slightly oversizing the trunk line now would avoid re-trenching and laying a second pipeline in the future if the City approves collection and treatment of Diablo Grande wastewater. If Diablo Grande wastewater is not collected by the City, the large collection facilities could accommodate additional development in the Master Development Plan area.

To accommodate wastewater generated by the Keystone Pacific Business Park portion of the West Patterson Business Park Master Development Plan area, the City is proposing to construct 12-inch and 21-inch sewer lines across the northern portion of the Creekside Meadows development to connect with the existing 21-inch line in the northwestern portion of Heartland Ranch.

Once constructed, the M Street and Walnut Street trunk line that was previously approved as part of the Creekside Development would convey wastewater generated by the Master development Plan area from the existing 27-inch line in M Street to the wastewater treatment plant. This sewer trunk line will run along M Street, cross Highway 33 and the railroad tracks, and then continue down Walnut Avenue to the wastewater treatment plant.

Treatment Plant Expansion

Expansion of the City's existing wastewater treatment plant has proceeded along a two-phase expansion program. The first phase involved expansion of the Activated Integrated Pond treatment system in the existing wastewater treatment plant facility, and construction of approximately 120 acres of percolation ponds. The first phase increased treatment plant design capacity by about 0.5 mgd and was constructed to serve the previously-approved 1,348-residences in the Creekside Development. The second-phase expansion added another 0.5 mgd and is intended to serve the balance of the Keystone Pacific Business Park and future development in the remainder of the General Plan area.

A sludge de-watering and disposal project is currently (2010) being designed. This project is planned for completion by the fall of 2010 and is intended to make it easier for plant personnel to dewater and dispose of excess sludge. In addition, another plant expansion which will include another activated sludge treatment system parallel to the existing system is currently in the design phase. The City is working with the State to obtain funding for this project, which will increase the rated capacity of the treatment plant to 3.5 mgd.

Regulatory Setting

Federal Regulations

Clean Water Act

The Federal Clean Water Act (CWA, 33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s water.” Important applicable sections of the federal CWA are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to “waters of the United States” to obtain certification from the state that the discharge will comply with other provisions of the Act. The local Regional Water Quality Control Board (RWQCB) provides certification.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the RWQCB, and is discussed further below.

Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. The U.S. Army Corps of Engineers administers this permit program.

Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) Program

Under the NPDES program, local governments and development projects are required to adopt and implement Best Management Practices (BMPs) to reduce water pollution. The Central Valley Regional Water Quality Control Board issues NPDES permits for the City’s wastewater treatment plant, establishing allowable effluent discharge levels. The current permitted NPDES limits the treatment plant capacity to an annual average daily flow of 3.5 MGD. NPDES permits typically expire five years after issuance and must be reissued every five years or less. During the re-issuance process the discharger must comply with all conditions of the existing permit until a new final permit is reissued.

State Regulation

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (California Water Code §§ 13000 et seq.), as amended, provides for protection of the quality of all waters of the state for use and enjoyment by the people of California. It further provides that all activities that may affect the quality of waters of the state shall be regulated to obtain the highest water quality that is reasonable, considering all demands being made and to be made on those waters. The Act authorizes the State Water Resources Control Board and regional boards to oversee responsibility for the coordination and control of water quality within California.

California State Water Resources Control Board

Responsibility for administering California water rights procedures lies with the California State Water Resources Control Board (SWRCB), which also is responsible for managing and administering various federal and state water quality control programs.

Procedures are provided by statute, but the board has the authority to establish rules and regulations to help it carry out its work. All board activities are governed by state water policy and are administered in accordance with policies and procedures in the California Water Code.

The SWRCB carries out its water quality protection authority through the adoption of specific Water Quality Control Plans. These plans establish water quality standards for particular bodies of water. California water quality standards are composed of three parts: the designation of beneficial uses of water, water quality objectives to protect those uses, and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The SWRCB has adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. This policy provides implementation measures for numerical criteria contained in the California Toxics Rule, promulgated in May 2000 by the U.S. EPA (SWRCB, 2005). When combined with the beneficial use designations in the Basin Plan, these documents establish statewide water quality standards for toxic constituents in surface waters.

Central Valley Regional Water Quality Control Board

Within the City's Planning Area, the CVRWQCB is responsible for the protection of beneficial uses of water resources. Designation of beneficial uses defines the resources, services, and qualities of the aquatic system that are the ultimate goals of protecting and achieving high water quality.

The CVRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility, and has adopted the Central Valley Region Water Quality Control Plan (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses of surface waters are described in the Basin Plan and are designated for major surface waters and their tributaries. In addition to identification of beneficial uses, the Basin Plan also contains water quality objectives that are intended to protect the beneficial uses of the Basin. The CVRWQCB has region-wide and water body-specific beneficial use water quality objectives.

Beneficial uses of the surface waters of the Delta include municipal, agricultural, industrial, and recreational uses, freshwater habitat, migration, spawning, wildlife habitat, and navigation. Beneficial uses for all groundwater resources in the Central Valley region include or potentially include municipal, agricultural, and industrial uses.

The CVRWQCB has set water quality objectives for all surface waters in the region concerning bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and ammonia. Water quality objectives for groundwater include standards for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity.

Local Regulations

City of Patterson Wastewater Master Plan

In 1992, the City of Patterson prepared the Wastewater System Master Plan (City of Patterson, 1992) to provide guidance for future expansion of its existing wastewater collection, treatment and disposal system to accommodate expected development in the City's General Plan Area as it may be amended by the West Patterson Business Park Master Development Plan. The Wastewater System Master Plan found that the existing collection system is considered adequate to serve the existing service area including infill.

The Master Plan also included a staged implementation program to meet the City's future treatment capacity needs, but recommended periodic review to incorporate revisions that may be appropriate due to changing future conditions. Over the last several years, a substantial amount of development has occurred in the western portion of the City. The sewer collection pipe sizes constructed for the new developments generally followed the recommendations set forth in the Master Plan, and some of the pipes were oversized to assist in providing sewage collection service for future development on the west side of the City.

In 2001, the City prepared the Western Expansion Area Sanitary Sewer Collection System report to determine the most cost effective way of providing sewage collection to the west side of the City's General Plan Area using the oversized sewer lines constructed since the 1992 Master Plan was developed. This report recommended an expansion of the sewer collection system. Under this system, the existing 15-inch and 21-inch sewer lines running through the Heartland Ranch (formerly Patterson Ranch) development would be loaded to near maximum capacity, and the 27-inch line in M Street would be loaded slightly above capacity.

Standards of Significance

In accordance with Appendix G of the CEQA Guidelines (Section 15131(a), a significant impact to wastewater would occur if the project would result in the following:

1. Project exceeds wastewater treatment requirement of the applicable Regional Water Quality Control Board;
2. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or
3. A determination by the wastewater treatment provider, which serves or may serve the project, that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Project Impacts and Mitigation Measures

Methodology

The following assessment of wastewater impacts associated with each of the Equal-Weight Alternatives was derived from consultations with City staff, a review of previous and ongoing wastewater planning and environmental documents, as well as a Wastewater Master Plan prepared by Lee and Ro as part of the 2010 General Plan update which is attached as Appendix 5.5 and incorporated herein by reference.

Projected Wastewater Flows Will Exceed Treatment Plant Design Capacity

Impact 5.5-1 The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would substantially increase wastewater flows from development within both the 20-year and 40 year buildout growth boundaries and require additional treatment plant design capacity to accommodate anticipated demands. This impact is considered potentially significant.

Future Wastewater Flows

By applying the wastewater flow factors provided in Table 5.5-3 to future development accommodated by each of the Equal-Weight Alternatives, future average annual wastewater flows for each of the alternatives can be estimated for both the 20-year and 40 year buildout growth boundaries, as shown in Table 5.5-4.

Table 5.5-4: Average Annual Wastewater Flow Projections
(Million Gallons Per Day)

Alternative	2010	2030	2050	Rated Capacity of WWTP In 2010	Difference
Existing	1.40	--	--		
Compact Development	--	4.55 ¹	5.75 ²	2.25	3.5
Jobs Emphasis	--	4.87 ¹	6.40 ²	2.25	4.15
Planning Commission Environmental Review Alternative	--	5.87 ¹	7.00 ²	2.25	4.75

Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010

1. Includes an allowance of 0.5 mgd from the Diablo Grande project.
2. Includes an allowance of 0.75 mgd from the Diablo Grande project.

Table 5.5-5: Peak Wastewater Flow Projections (Million Gallons Per Day)		
Alternative	2010	2050
Existing	4.02	--
Compact Development	--	14.4 ¹
Jobs Emphasis	--	16.6 ¹
Planning Commission Environmental Review Alternative	--	17.9 ¹
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010 1. Includes an allowance of 1.8 mgd from the Diablo Grande project.		

Treatment Plant Capacity

As discussed in the Setting, above, the wastewater treatment plant has a current (2010) rated capacity of 2.25 mgd and a permitted capacity of 3.5 mgd. Improvements currently under design will increase the rated capacity to about 3.5 mgd. As shown in Table 5.5-4, each of the Equal-Weight Alternatives will generate wastewater flows that exceed the rated capacity of the wastewater treatment plant. The shortfall in capacity for the 40 year buildout timeframe (2050) ranges from 3.5 mgd for the Compact Development Alternative, to 4.75 mgd for the PC Environmental Review Alternative. This is considered a potentially significant impact.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the increased generation of wastewater that may result from implementation of the Equal-Weight Alternatives, including the following:

Policies

- PS-2.1 Old sewer lines.** The City shall selectively repair or replace old sanitary sewer lines to eliminate or minimize infiltration/inflow.
- PS-2.2 Provision of sewer service.** The City shall ensure the provision of adequate sewer service to all new development in the city and support the extension of sewer service to existing developed areas where this service is lacking.
- PS-2.3 Treatment capacity.** The City shall expand and develop new wastewater treatment and disposal capacity as needed to accommodate the needs of existing and planned development.
- PS-2.4 Fair share costs.** The City shall, through a combination of development impact fees and other funding mechanisms, ensure that new development pays its fair share of the costs of sewer system improvements.

PS-2.5 Reuse of treated water. The City shall research viable options for the reuse of treated wastewater, in conjunction with industrial, commercial, agricultural, recreational, and public landscaping uses.

PS-2.7 Wastewater treatment standards. The City shall ensure that all discharge standards established by the Regional Water Control Board are met in the operation of the wastewater treatment facility.

Implementation Measures

PS-4 The City shall review and periodically update the City's Sewer Master Plan consistent with the land use patterns and densities/intensities specified in the General Plan.

PS-9 The City shall periodically update its long-term Capital Improvements Programs (CIPs), including sewer, water, drainage, police and fire protection, and other facility improvements.

PS-11 The City establish and collect development impact fees as needed for public services in accordance with Government Code 66000, et seq.

Recommended Treatment Plant Improvements

The 2010 Master Plan recommends improvements to the wastewater treatment plant to accommodate projected flows from each of the Equal-Weight Alternatives for peak flows. Although improvements are recommended to serve each Equal-Weight Alternative, the Master Plan emphasis improvements necessary to serve the Planning Commission Environmental Review alternative because it generates the highest average annual and peak flows (see Tables 5.5-4 and 5.5-5).

Influent Pump Station

The existing Influent Pump Station (IPS) will not have sufficient capacity as the City develops. Further, because of topography, the future trunk sewers will arrive at the plant at elevations below the existing sewer inverts at the IPS. As a result, a second IPS will be required. This second pump station will be located adjacent to the existing IPS, and it will include bar screens and odor control facilities similar to those at the existing IPS.

The existing IPS has an ultimate capacity of about 7 mgd. Therefore, the second IPS must have a capacity of about 11 mgd. This capacity will require five pumps (one standby) each having a capacity of 2.8 mgd. Before the City reaches full development, a reduced number of 2.8 mgd pumps would be installed in the basic structure which will be sized for the ultimate capacity.

Emergency/Equalization Basins

In case of a major emergency at the plant, two emergency/equalization basins will be provided. These basins will be constructed in the existing Pond 2 area. Each basin will have a capacity of four (4) million gallons (mg) and they will be lined and paved to protect the groundwater and facilitate cleaning. Also, these basins could be used for diversion and storage of extreme peak flows. Operation of the emergency basins as equalization basins would make it possible to reduce the size of the hydraulic features (e.g. the intermediate pump stations) of the plant.

South Activated Sludge Treatment Systems

After the Phase III project is complete, the two South Activated Sludge Treatment Systems (SASTS) will have a combined rated capacity of 2.5 mgd. As wastewater flow increases, two additional SASTS units will be constructed. Each of the new SASTS will be larger than the Phase II and Phase III SASTS with a rated capacity of 1.75 mgd each. Once completed, the combined total rated capacity of all SASTS will be 6 mgd. This capacity will not be adequate for the predicted Planning Commission alternative wastewater flows. Further, at some time during the planning period the North Activated Sludge Treatment System (NASTS) will reach the end of its useful life as an activated sludge treatment unit. The NASTS may be converted to an aerobic digester, a treatment unit for the side streams from future anaerobic sludge dewatering facilities, or just abandoned and demolished.

Primary Sedimentation Tanks

Before wastewater flows exceed the capacity of the four SASTS units, primary sedimentation tanks will be constructed. These treatment units will reduce the organic load to the SASTS (not the hydraulic load) and effectively increase the capacity of the SASTS to treat average wastewater flows at full development. Ultimately there will be three rectangular primary sedimentation tanks, each 20 feet wide and 150 feet long. Once these tanks have been constructed it will also be possible to divert peak flows to the emergency/equalization basins from the effluent channel of the primaries. This change will keep grit and sludge out of the emergency basins and will make clean up the emergency basins much easier.

The primary sedimentation tanks will be covered to prevent the escape of foul air from the tanks and associated channels. The air exhausted from under the covers will be treated in soil beds similar to the ones provided for the influent pump stations.

Vortex Grit Removal Tanks

With the construction of primary sedimentation tanks it will become more feasible and advantages to construct grit removal facilities. Grit removal prior to sedimentation would keep grit out of the anaerobic digesters and preserve digester volume for sludge treatment. There are several options for grit removal, but current trends favor vortex grit removal because this process consumes less energy than aerated grit tanks and generates less foul air. At full development at least two vortex grit removal units will be required together with a bypass channel for emergencies or peak flows.

Mixed Liquor Channel

To increase the flexibility of the SASTS, a common mixed liquor channel will be added between the activated sludge tanks and the secondary clarifiers. If one activated sludge tank or one secondary clarifier has to be taken out of service for some reason, this common channel will make it possible to continue plant operations for short periods of time without significantly degrading the effluent quality.

Secondary Clarifiers

Each SASTS unit will be accompanied by a secondary clarifier. The Phase IV and Phase V clarifiers will have a diameter of 100 feet which will be 20 feet larger than the Phase II and Phase III clarifiers. All of the clarifiers will be equipped with sprays to control foam and scum accumulations at the center well.

Secondary Effluent Pump Station

The existing effluent pump station will be converted to a plant water pump station and a new effluent pump station will be provided to feed the effluent filters and subsequent ultra violet light disinfection channels. This station will have five pumps (one standby) each rated for 3.5 mgd.

Filters/UV Disinfection

There are several different types of secondary effluent filters that will meet the Title 22 water reclamation requirements. Recently, however, cloth filters have emerged as the most cost effective option. As a result,

the master plan envisions cloth filters sized at 3 gallons per minute per square foot of filter area. Future improvements in the "cloth" may increase cloth filter capacities and reduce the cost of these units. The filters will be followed by channels with ultra violet lamps for disinfection.

Effluent Pump Station

Following disinfection, the plant effluent will be pumped to percolation ponds or to a ground level storage reservoir prior to discharge to the reclaimed water system. This pump station will also include five pumps (one standby) each rated for 3.5 mgd.

The 500,000 gallon ground-level storage reservoir will be of steel construction. Reclaimed water is typically used for irrigation during the night hours which means that the peak to average ration will be approximately three. As a result, much larger reclaimed water storage volumes may be needed out in the reclaimed water system. This reservoir will probably not be adequate for system storage. It should be considered as a forebay for the reclaimed water pump station.

Reclaimed Water Pump Station

Reclaimed water is proposed for irrigation throughout the City and for spreading to recharge the groundwater basin. This pump station will lift the reclaimed water to the system pressure for distribution to the various points of use. The station will include a sodium hypochlorite storage tank and dosing pumps so that a chlorine residual can be applied to the reclaimed water before it is discharged to the system. The chlorine dose will control the re-growth of bacteria and slimes in the system pipelines and reduce maintenance costs.

Design Illustrations

The recommended wastewater treatment plant improvements for each of the three Equal-Weight Alternatives are shown in Figures 5.5-4, 5.5-5 and 5.5-6. The design criteria are provided in Appendix 5.5.

Solids Treatment

In addition to improvements necessary for the treatment of the increased wastewater flows, the wastewater treatment plant will require expanded capacity to treat and dispose of solids produced in the treatment process, as outlined below.

Aerobic Digesters

The Phase II and Phase III SASTS each include three aerobic digesters. The Phase II digesters each have a volume of 100,000 gallons. The Phase III digesters each have a volume of 130,000 gallons. The Phase IV and Phase V SASTS will also include three 160,000 gallon digesters each. The aerobic digesters will be used to receive waste activated sludge (WAS) from the SASTS and reduce the sludge volume through digestion and thickening. Consequently the digesters will all include aerators, circulation or discharge pumps, and one external rotary drum thickener for every three digesters.

Dewatering Centrifuges

The first centrifuge project will be completed during the fall of 2010. The single centrifuge installed at that time will be mounted on a skid and provided as a package which will include a sludge feed pump, grinder, screw conveyor and local control panel. A polymer feed system will also be provided as part of the dewatering system, but the polymer pumps will be installed in the existing polymer building.

The centrifuge will have capacity for 200 gallons per minute (gpm) of sludge at a solids concentration of one percent which is equivalent to approximately 1,000 dry pounds of sludge per hour. Alternatively, at 200 gpm and a solids concentration of two percent, the capacity would be approximately 1,500 dry pounds per hour. Initially when centrifuge maintenance is needed, the digested WAS can be dewatered

on six plastic media drying beds constructed as part of Phase II. As additional SASTS are constructed two more centrifuges will be added. These centrifuges will have the same capacity as the initial unit.

Sludge Storage Area

As part of the 2010 centrifuge project, a portion of Percolation Pond 4 will be converted to a dewatered sludge holding area. Initially, only a half acre of this pond will be lined and paved, but the design will provide for the eventual conversion of the entire pond to a sludge holding area. Further, in the future, a portion of Pond 5, which is just north of Pond 4, will also be converted to a sludge holding area.

The sludge holding area will allow for further drying of the sludge which will reduce hauling and disposal costs. Also, by holding the sludge the City may take advantage of agricultural land application which will cost less than disposal to a landfill.

Anaerobic Digestion

After the Primary Sedimentation Tanks are constructed, sludge from these tanks will be discharged to anaerobic digesters. Anaerobic digestion will significantly reduce the volume of sludge requiring disposal. Also, it will produce methane gas which will be used to heat the digesters and fuel cogeneration facilities.

Two digesters, each 58 feet in diameter, will be provided, together with a digested sludge holding tank which should be about 40 feet in diameter. Digester side water depth will be 30 feet. The sludge holding tank will have a side water depth of 25 feet. Digesters of this size will treat all of the primary sludge and all, or a portion, of the WAS.

From the holding tank, sludge will be pumped to a new solids dewatering facility located on the north side of the plant, near the primary sedimentation tanks and digesters. When this facility is constructed, the centrifuges may be relocated from the aerobic digester area or new sludge dewatering equipment may be purchased at that time.

Plant Fuel Systems

A boiler will be required for heating the contents of the digesters to the optimum temperature of 95° F. Fuel for the boiler will come from the gas produced by the digesters or from the local gas utility. When the boiler is installed a new natural gas service will be needed. Prior to use, the digester gas will have to be treated for removal of hydrogen sulfide. Finally, for cost effective use of the digester gas, a gas storage tank and low pressure gas compressors will be needed.

Cogeneration

At full development the digesters will produce about 70,000 cubic feet of digester gas each day. This will be enough gas to make a cogeneration facility economically feasible. If current cogeneration trends continue, the City would execute a separate construction and service contract for cogeneration. As part of the agreement the City would supply the digester gas and the space at the plant for the cogeneration package and receive electricity and hot water for digester heating in return. The design criteria for the solids treatment alternatives are provided in Appendix 5.5 Wastewater Master Plan.

Administration Building

In addition to the treatment facilities there is an urgent need for an administration building at the plant. This building should include space for a plant control center, locker rooms for the operators, a lunch room, several offices and a reception area. Also, there should be a sample preparation and storage room and a laboratory for analyzing the samples. The laboratory size would depend on the whether or not the City wants to perform most of the analyses required by their permit, or if it is decided to contract these services out to a private laboratory.

Figure 5.5-4: Recommended Treatment Plant Improvements For the Compact Development Alternative



Figure 5.5-5: Recommended Treatment Plant Improvements For the Jobs Emphasis Alternative

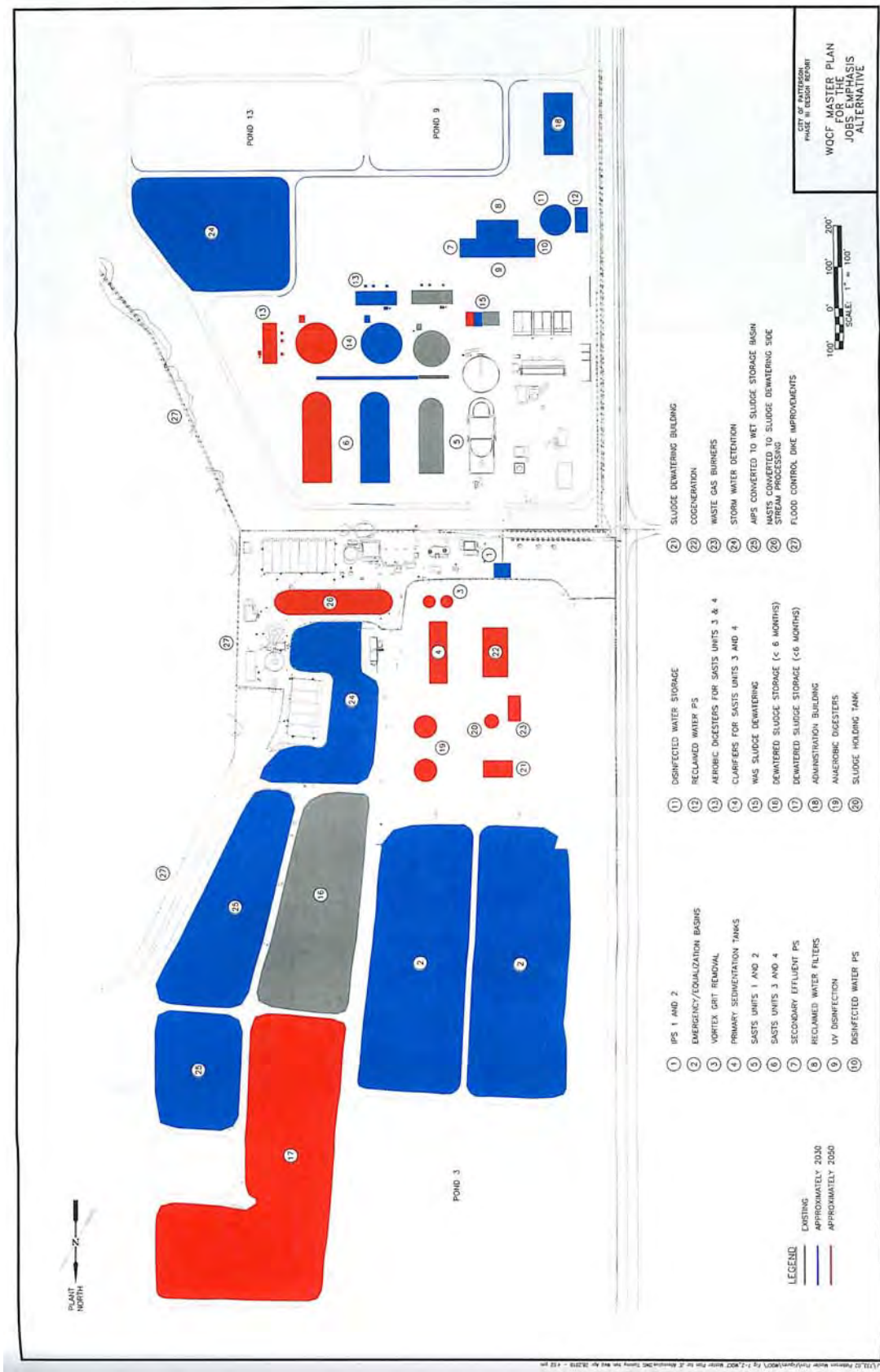
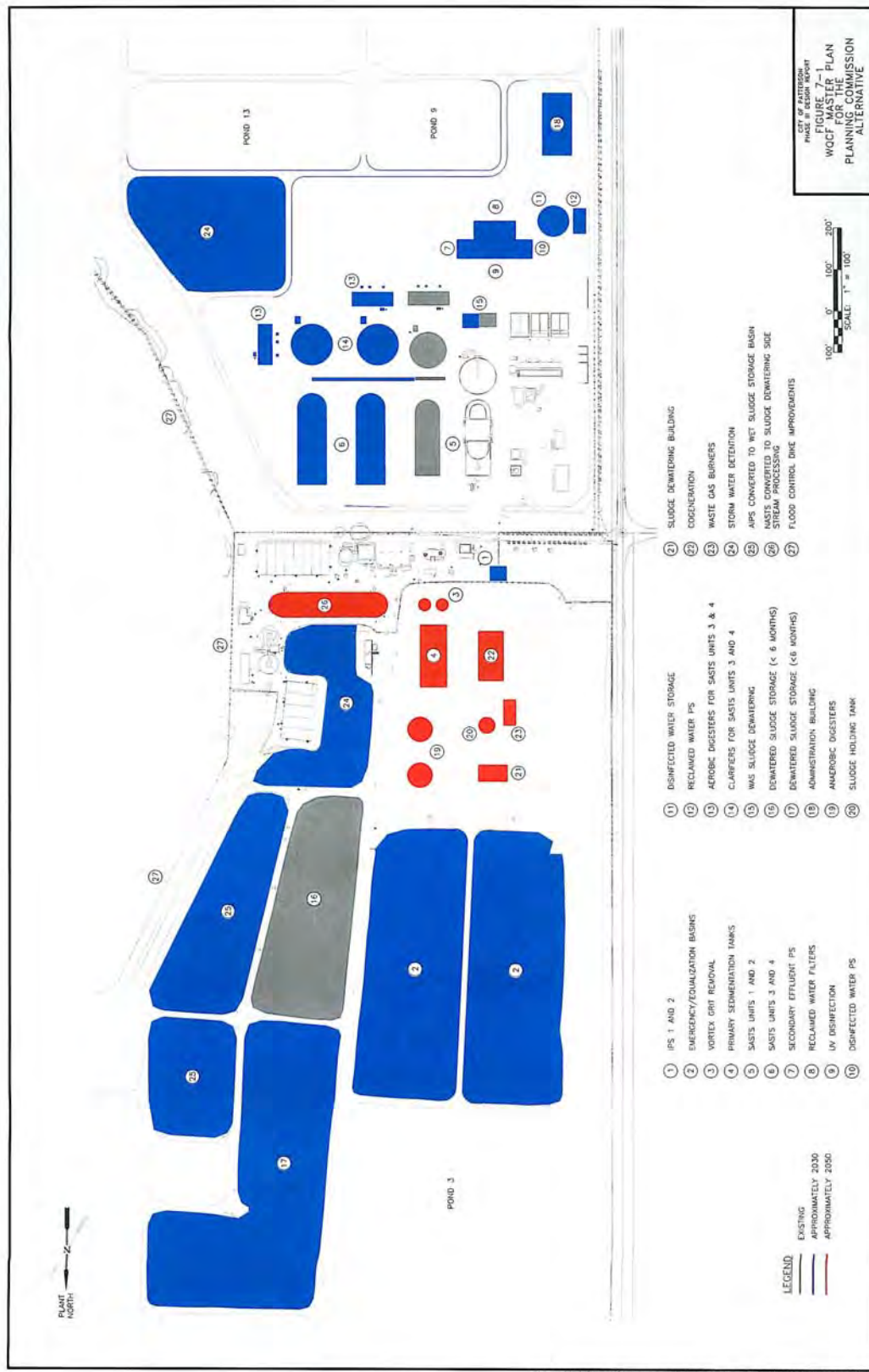


Figure 5.5-6: Recommended Treatment Plant Improvements for the Planning Commission Environmental Review Alternative



Additional Mitigation

The following additional implementation measures are recommended as mitigation:

- PS-14 The City shall implement the improvements recommended by the 2010 Wastewater Master Plan as determined by the City Council.

The policies and implementation programs listed above apply to each Equal-Weight alternative and will help minimize impacts relating to wastewater collection, treatment and disposal. Therefore, this impact is considered **less than significant**.

Construction of Wastewater Collection and Disposal Infrastructure

Impact 5.5-2. The Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40 year buildout growth boundaries will require the extension of wastewater collection infrastructure into previously unserved areas. This impact is considered potentially significant.

Each of the Equal-Weight Alternatives designates additional land for urban development for both the 20-year and 40 year buildout growth boundaries in areas that are currently not served by wastewater collection systems. Moreover, the existing trunk sewer system does not have remaining capacity sufficient to accommodate the additional flows associated with the Equal-Weight Alternatives for either the 20-year growth boundary or the 40 year buildout growth boundary. This impact is considered **potentially significant**.

To assess the potential impacts to the wastewater collection, treatment and disposal systems, associated with the Equal-Weight Alternatives, a Wastewater Master Plan (Lee and Ro, May 2010) was prepared as part of this EIR which is incorporated herein by reference and provided in its entirety as Appendix 5.5. The following is a summary of the findings and recommendations of that analysis as it pertains to wastewater collection.

For each Equal-Weight Alternative the 2010 Wastewater Master Plan identifies new trunk sewer lines to convey wastewater from expansion areas. The recommended diameter and capacity of each trunk line was calculated to serve the land uses shown for each of the Equal-Weight Alternatives. The recommended trunk system improvements for each equal-Weight Alternative are shown on Figures 5.5-7, 5.5-8 and 5.5-9.

- For the Compact Development Alternative the north trunk sewer starts at 15 inches in diameter at the west end and increases to 27 inches near the treatment plant.
- For the Planning Commission Environmental Review Alternative the north trunk sewer ranges in size from 15 inches in diameter to 30 inches near the treatment plant. The south trunk sewer ranges in size from 15 inches at the west end to 24 inches near the plant.
- For the Jobs Emphasis Alternative sewer sizes and capacities are about midway between the sizes for the Compact Development and PC Environmental Review alternatives.

The trunk sewer calculations do not include any new large pumping stations. However, there will likely small pumping stations may be needed to serve areas between the canals and the area west of Interstate 5. These plants will likely be required because of the cost of providing gravity sewer lines over or under the canals and or the freeway. Conversely, depending on the alignment of the new north and south trunk sewer lines, it may be feasible to take some of the existing pump stations out of service.

Construction of the relevant trunk systems corresponding to each Equal-Weight Alternative will provide sufficient capacity to convey the anticipated 2050 wastewater flows from each Alternative.

Figure 5.5-7: Recommended Wastewater Trunk System for the Compact Development Alternative

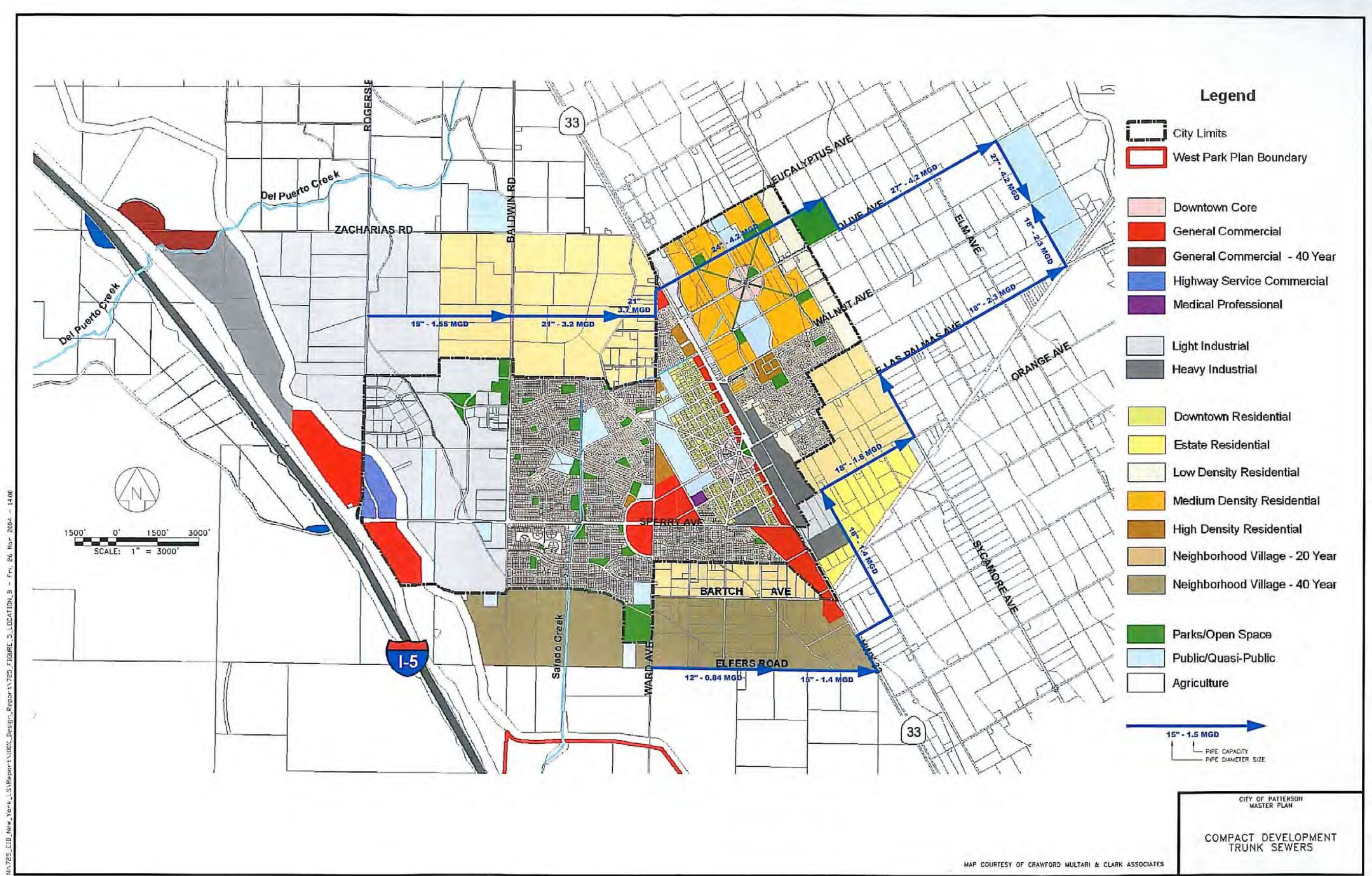


Figure 5.5-8: Recommended Wastewater Trunk System for the Jobs Emphasis Alternative

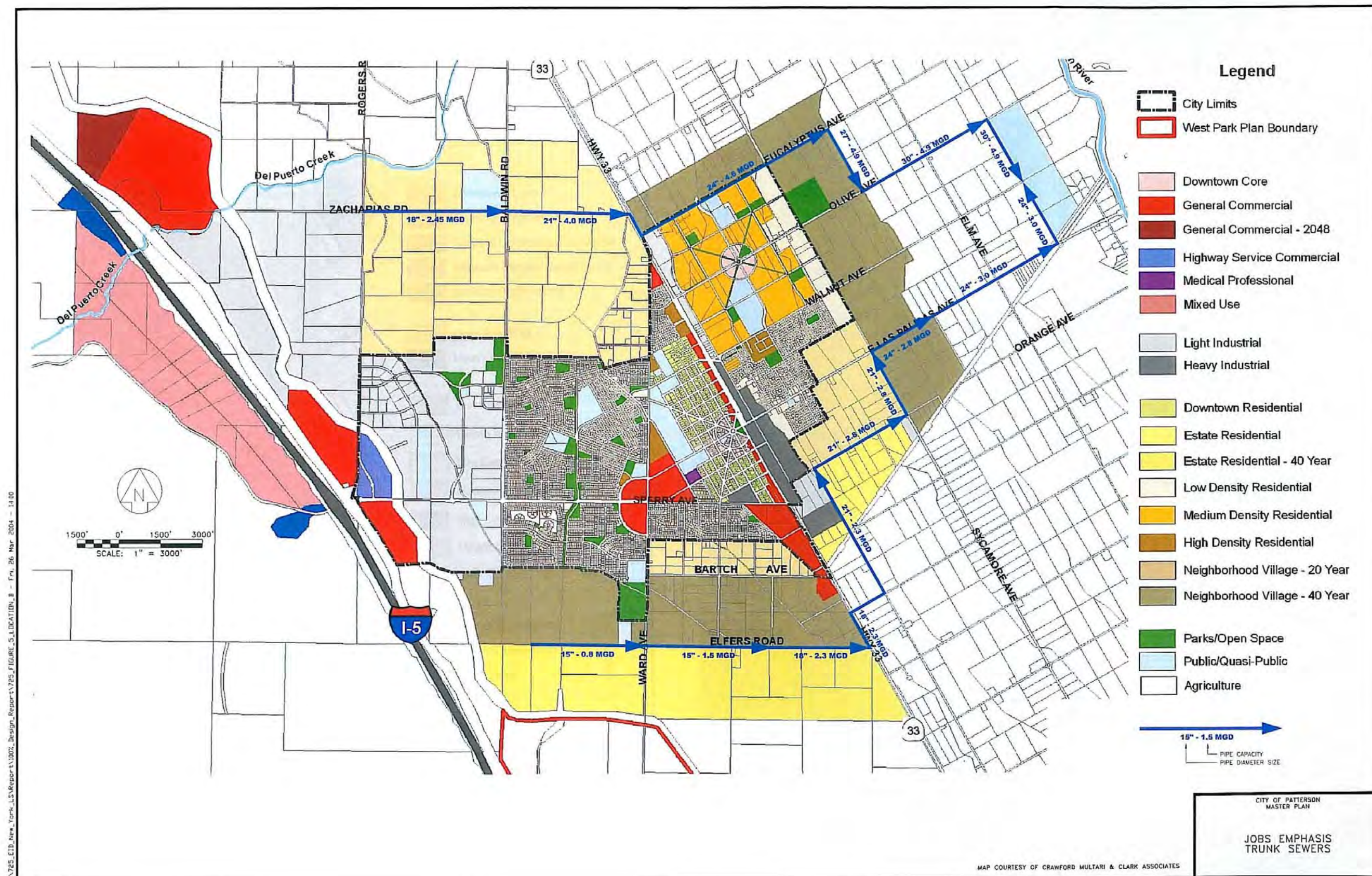
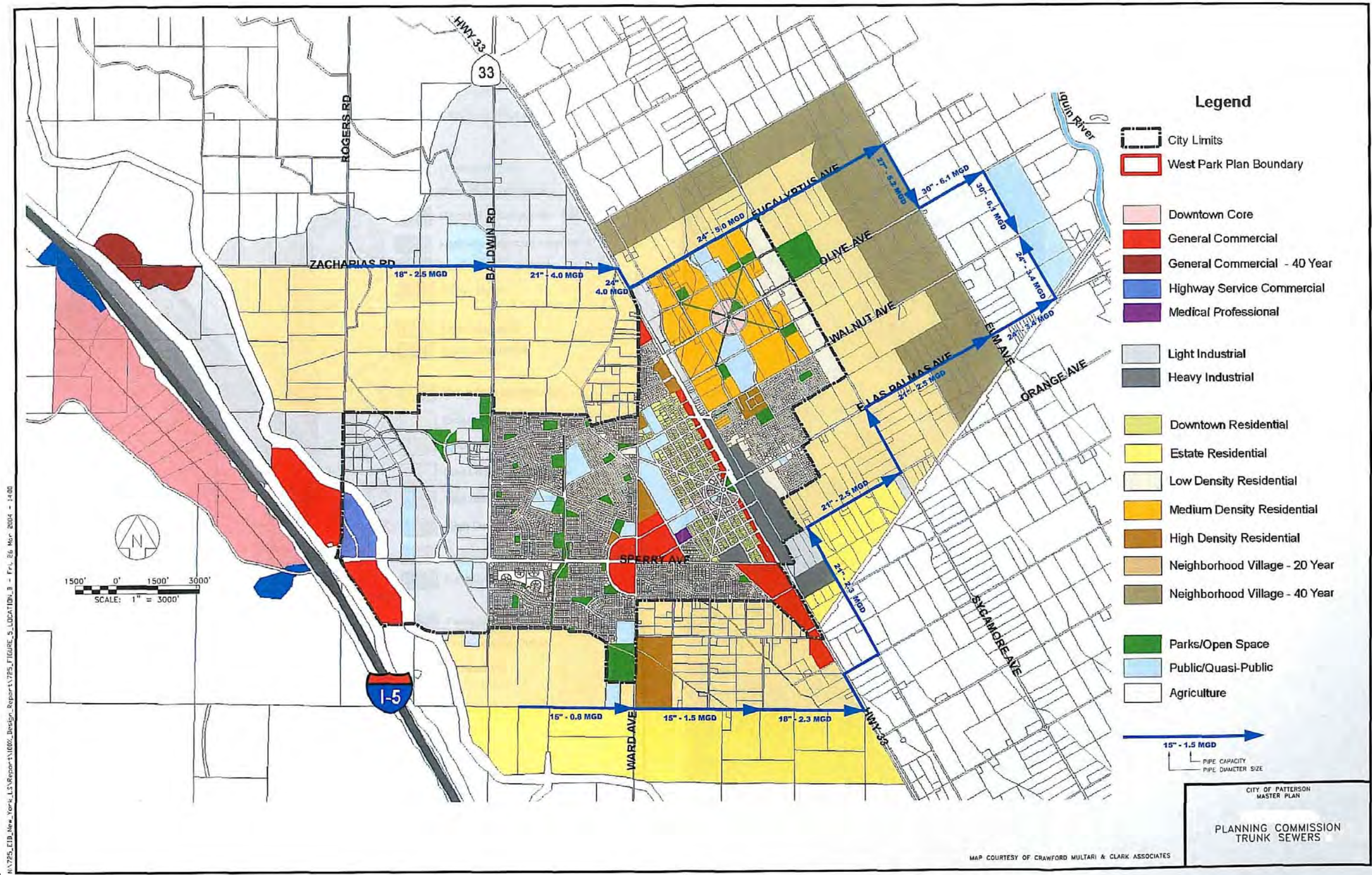


Figure 5.5-9: Recommended Wastewater Trunk System for the Planning Commission Environmental Review Alternative



Construction-related impacts from the removal and installation of new wastewater collection lines include the following, which are discussed in sections 5.1 through 5.15 of this EIR:

- Air quality: emissions associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources can be found in Section 5.10.
- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use. Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.
- Traffic: construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- Water quality: earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- Geology and Soils: construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9- Geology and Soils.

Construction-related impacts would be temporary and localized. All of the installation would occur in established roadways through developed areas. A typical duration for installation of wastewater collection lines involves construction in a single block for less than one week. Common construction practices are to install new lines in segments, avoiding traffic disruptions over longer distances on roadways.

The collection facilities to be constructed would be consistent with the City's existing wastewater collection infrastructure. Accordingly, implementation of the additional collection systems would complement, rather than adversely impact, the City's existing system. It is anticipated that the incremental physical impacts – those impacts above and beyond the impacts of the other earth-disturbing activities in the area – associated with the laying of wastewater collection pipeline and the construction of lift stations would be **potentially significant**.

Mitigation Provided By Existing Regulations

Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a

project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Draft Policy Document Response

Policies

- AR-1.3 CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- AQ-1.4 Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AR-5.1 Particulates from grading.** The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.
- NR-1.3 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.

Implementation Measures

- AR-1** Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.
- AR-2** Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.
- PS-6** New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring

would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City shall require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Recommended Additional Mitigation

- PS-15 The City shall require new development to implement relevant portions of the 2010 Wastewater Master Plan by:
- a. Installation of improvements necessary to serve such development, and/or
 - b. By the payment of in-lieu development impact fees that may be established from time to time by the City to fund wastewater collection treatment and disposal improvements required for new development.

In addition, recommended mitigation AR-6 in section 5.7-Air Quality and Climate Change, and measure HS-10 in Section 5.10-Noise, require the following:

AR-6 The City shall require all of the following as a condition of project approval:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track-out (earth material deposited on City streets by construction equipment) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activity when winds exceed 20 mph; and
- Limit area subject to excavation, grading, and other construction activity at any one time. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

HS-10 The City shall require the following as a condition of project approval to mitigate the adverse noise effects of construction-related activities:

- Construction activities shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. on Saturday, with no construction on Sundays or federal and state holidays; minor construction equipment servicing and maintenance will be exempted from this restriction.
- During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
- Stationary noise sources and staging areas shall be located as far as is feasible from existing residences, or contractors shall be required to provide additional noise-reducing engine enclosures (with the goal of achieving approximately 10 dBA of reduction compared to uncontrolled engines).

- Air compressors and pneumatic equipment shall be equipped with mufflers, and impact tools shall be equipped with shrouds or shields.
- If for construction purposes, locating stationary construction equipment near existing residential uses is required, an eight-foot-tall sound rated fence shall be erected between the equipment and the sensitive receptor. The fence shall be located as close to the equipment as is feasible.
- Construction vehicle access routes shall be designed to minimize the impact on existing residences and occupied hospital facilities.
- A “construction liaison” shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Occupants and property owners of residences within 400 feet of construction activity shall be notified in writing of the construction schedule and the contact information for the construction liaison.
- A qualified acoustical engineer shall be retained during the construction phase of the project to determine if the noise levels generated from construction equipment at the project site to adjacent property lines are within the standards.

Lastly, continued compliance with relevant provisions of the Clean Water Act regarding the protection of surface and groundwater quality. Specifically:

- Compliance with the City’s Small MS4 General Permit Best Management Practices before, during and after construction; Such BMPs include:
 - Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
 - Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
 - Providing a central location for concrete washout and performing routine maintenance.
 - Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
 - Covering and/or containing stockpiled materials and overall good housekeeping on the site.
- For projects disturbing more than one acre of land during construction continuing to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. Under the provisions of the City’s General Permit, a developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of wastewater infrastructure. In addition, the construction of new or expanded wastewater facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of wastewater facilities. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential

impacts of construction of new wastewater infrastructure will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

Treatment Plant Expansion Will Require Revisions to the City's Discharge Permit from the Regional Water Quality Control Board

Impact 5.5-3 The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will require additional treatment capacity to accommodate anticipated demands that exceeds the current waste discharge volume permitted by the Regional Water Quality Control Board. A revision of the City's discharge permit is under the authority of a separate agency (the RWQCB) and therefore it cannot be guaranteed. Therefore, this impact is considered significant and unavoidable.

As discussed under impact 5.5-1, each of the Equal-Weight Alternatives will generated wastewater flows that will exceed the rated treatment capacity of the wastewater treatment plant. In addition, wastewater flows associated with each of the Equal-Weight Alternatives will exceed the permitted capacity of the treatment plant under the discharge permit issued for the plant by the Regional Water Quality Control Board. Table 5.5-7 compares future wastewater flows from each Equal-Weight Alternative with the permitted capacity of the wastewater treatment in 2010.

Table 5.5-7: Comparison of Projected Average Annual Wastewater Flow With 2010 Permitted Capacity (Million Gallons Per Day)				
Alternative	2030	2050	Permitted Capacity of WWTP In 2010	Difference
Compact Development	4.55 ¹	5.75 ²	3.5	2.25
Jobs Emphasis	4.87 ¹	6.40 ²	3.5	2.90
Planning Commission Environmental Review Alternative	5.87 ¹	7.00 ²	3.5	3.50
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010				
1. Includes an allowance of 0.5 mgd from the Diablo Grande project. 2. Includes an allowance of 0.75 mgd from the Diablo Grande project.				

As shown in Table 5.5-7, each of the Equal-Weight Alternatives will require an amendment of the City's current National Pollution Discharge Elimination System (NPDES) permit. Under the NPDES program, local governments and development projects are required to adopt and implement Best Management Practices (BMPs) to reduce water pollution. The Central Valley Regional Water Quality Control Board issues NPDES permits for the City's wastewater treatment plant, establishing allowable effluent discharge levels. As discussed under the Setting, the current permitted NPDES limits the treatment plant capacity to an annual average daily flow of 3.5 mgd. NPDES permits typically expire five years after

issuance and must be reissued every five years or less. During the re-issuance process the discharger must comply with all conditions of the existing permit until a new final permit is reissued.

Revisions to, or re-issuance of, the NPDES permit falls within the exclusive jurisdiction of the Regional Water Quality Control Board. There are two classifications of permit modifications: major and minor. From a procedural standpoint, they differ primarily with respect to the public notice requirement. Major modifications require public notice; minor modifications do not. Virtually all modifications that result in less stringent conditions must be treated as major modifications. Conditions that would necessitate a major modification of a permit are described in 40 CFR §122.62.

Because issuance of a revised NPDES permit is necessary to increase the permitted treatment capacity of the treatment plant, and because issuance of the amended permit falls under the jurisdiction of another agency (the Regional Board) the increased permitted capacity cannot be guaranteed by the City. Therefore, the need for additional permitted capacity for each Equal-Weight Alternative for both the 20-year and 40 year buildout timeframes is **considered a significant and unavoidable impact**.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the increased generation of wastewater that may result from implementation of the Equal-Weight Alternatives, including the following:

Policies

- PS-2.3 Treatment capacity.** The City shall expand and develop new wastewater treatment and disposal capacity as needed to accommodate the needs of existing and planned development.
- PS-2.7 Wastewater treatment standards.** The City shall ensure that all discharge standards established by the Regional Water Control Board are met in the operation of the wastewater treatment facility.

Additional Mitigation

The following additional mitigation is recommended as an implementation measure:

- PS-15** The City will apply to the Regional Water Quality Control Board to modify or re-issue the City's National Pollution Discharge Elimination Permit for the wastewater treatment plant as necessary to accommodate the increase in disposal capacity necessary to serve buildout of the General Plan.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for wastewater includes the existing City, as well as previously approved and reasonably foreseeable future development within the City's wastewater service area, combined with development accommodated by each of the Equal-Weight Alternatives.

Cumulative Impacts

Impact 5.5-4 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives would contribute to the cumulative demand for wastewater service. However, policies recommended by draft Policy Document require that wastewater conveyance and treatment capacity be provided concurrently or in advance of development which in turn could result in physical impacts to the environment. This impact is considered less than cumulatively considerable.

Draft General Plan Policy Response

The draft policies and implementation measures listed for project impacts under impacts 5.5-1, 5.5-2, 5.5-3 will mitigate cumulative impacts relating to wastewater. Therefore, these impacts are considered less than cumulatively considerable.

The cumulative impacts associated with the permanent loss of habitat for sensitive biological resources associated with the construction of disposal ponds is discussed under impacts 5.10-1 and 5.10-20 of section 5.10-Biological Resources. Project and cumulative impacts associated with the permanent loss of prime agricultural land associated with the construction of disposal ponds is discussed under impacts 5.11-2 and 5.11-5 of section 5.11-Agricultural Resources.

Additional Mitigation

None required.

References

City of Patterson, 2010

City of Patterson Western Expansion Area Sanitary Sewer Collection System Report, 2001

CMCA City of Patterson 2010 Draft Policy Document

EDAW, Patterson Wastewater Master Plan and Diablo Grande Sewer Line Draft EIR, October, 2003.

Lee and Ro (February 28, 2006). Technical Memorandum from Bob Goodwin to Ignacio Lopez Regarding the Status of the Treatment Plan and Percolation Ponds and projected Wastewater Capacity Needs.

Lee and Ro, May 2010, City of Patterson Wastewater Master Plan

Turnstone Consulting, Draft Environmental Impact Report for The Villages of Patterson Project, 2006.

Turnstone Consulting, Draft Environmental Impact Report for the West Patterson Projects, 2002.

Wastewater Collection Master Plan and 2001 Revisions, Stoddard & Associates.

5.6 TRANSPORTATION

Introduction

This section assesses potential impacts associated with each of the Equal-Weight Alternatives to the City's transportation system, including streets and intersections, as well as pedestrian, transit, rail and air traffic. The findings and conclusions are based in part on a traffic study prepared for the 2010 General Plan update by TJKM Transportation Consultants which is provided in its entirety as Appendix 5.6 Traffic Study. The study was commenced in 2007 and much of the data are from that year. There has been very little development in Patterson and the region due to the economic recession and housing market collapse. The roadway conditions have not changed considerably since the time the data were gathered.

Setting

Regional Context

Patterson is located adjacent to Interstate 5, a major north-south transportation route through the Central Valley. Interstate 5 connects with Interstate 580 approximately 15 miles north of Patterson, which provides access for commuters to the East Bay Area cities of Livermore and Dublin. State Route 33 divides Patterson along a northwest/southeast axis and provides access to Westley to the north and Crows Landing to the south. Las Palmas Avenue provides the easterly connection to Modesto and Turlock via a bridge over the San Joaquin River.

Physical Constraints on the Street and Road System

The natural and human-made local features that limit existing and future roadway connections and alignments include:

- The Union Pacific Railroad right-of-way. The Union Pacific Railroad maintains a railroad right-of-way that parallels State Route 33 and divides the City east and west. As a result, the tracks limit the number and location of connections between the east and west portions of the City.
- The various canals and creeks which require bridge structures at each point where roadways cross them.
- Interstate 5 to the west of the city, which has only one interchange to enter or exit Patterson along Sperry Avenue.
- The San Joaquin River to the east, with the Las Palmas bridge as its only crossing to and from Patterson.

Functional Classification of Roadways

The street system that serves a city can be described in hierarchical fashion, relating to the functional classification of the streets and highways. Patterson's street system can be classified according to four basic functional types of roadways:

Local Service Roadways provide immediate access to properties that are likely to be discontinuous in alignment, and generally carry very light traffic volumes. Those streets not identified with the other three street classifications described below fall into this functional classification.

Collector Roadways are fed by local service roadways, provide local circulation options, provide connections to other roadways, and generally carry light to moderate traffic volumes. Included in this classification are the following streets:

Ivy Avenue	Orange Avenue
“M” Street	Ward Avenue
Baldwin Road	W. Las Palmas
Keystone Pacific Parkway	Calvinson Parkway
Hartley Street	Olive Avenue
Eucalyptus Avenue	

Arterial Roadways are fed by local service and collector roadways. They provide intra-city circulation routes and connections to regional roadways and generally carry relatively heavy traffic volumes. Included in this functional classification are the following streets:

E. Las Palmas Avenue
 Second Street (State Route 33)
 Sperry Avenue

Expressways are controlled-access divided highway with at-grade intersections. There are presently none in Patterson, but some are proposed by the 2010 General Plan.

Freeways are fed by collector and arterial roadways. They provide intra-city and inter-city travel, provide connections to other regional highways, and are capable of carrying heavy traffic volumes. Interstate 5 serves this function for the Study Area.

This hierarchy of streets is a general guide to the classification of streets which make up the circulation system of a city. Often a street serves a dual function, such as providing both arterial and collector service. Therefore, it is sometimes difficult to provide a definitive classification. In addition, the width of a roadway does not always correspond directly to its function in the overall circulation system, though the wider roadways tend to have more regional functions within the circulation system.

Important Components of the City’s Roadway System

Figure 5.6-4 shows the existing local street circulation serving the Study Area. Important roadways in the project vicinity are described below:

Interstate 5 is a four-lane freeway near Patterson. According to the 2008 traffic counts obtained from the Caltrans website, I-5 carries between 36,000 to 41,000 vehicles per day (vpd) in the vicinity of Sperry Avenue. For regional travel, residents rely primarily on Interstate Highway 5 (I-5), a major north-south freeway to the west of the city limits. I-5 connects to I-580, approximately 15 miles to the north of Patterson. I-5 and I-580 provide access to regional employment centers in Pleasanton, San Ramon and the rest of the San Francisco Bay Area.

The interchange of I-5/Sperry Avenue is configured as a tight diamond with a narrow underpass road and a steep drop in grade next to the northbound on-ramp. The ramps are one lane in each direction.

State Route 33 (SR 33) is located approximately three miles to the east of I-5. SR 33 provides north-south access to Westley to the north and the City of Newman to the south. Its ADT is approximately 6,000 vpd. It is the main north-south roadway in Patterson.

Sperry Avenue is a two to four lane major arterial roadway that serves as the major route of travel between I-5 to the west and the City of Patterson to the east. Sperry Avenue terminates at SR 33, three miles east of I-5. Near the freeway, its ADT is approximately 9,800 vpd.

East Las Palmas Avenue is a three-lane major east west arterial including a center two-way left-turn lane between SR 33 and Sycamore Avenue, where it narrows to a two-lane road. To the west of SR 33, four streets form a roundabout at Las Palmas Avenue. Most traffic destined for Modesto currently uses Las Palmas Avenue. Its ADT is approximately 9,000 vpd.

The city's existing street system is shown on Figure 5.6-4, with roadways discriminated by the functional classifications described above. The City's roadway system consists of a north-south/east-west grid of collector streets (Ward Avenue, Baldwin Road, Hartley Street, Sycamore Avenue, Calvison Parkway) conveying traffic from residential neighborhoods to a series of arterials (Sperry Avenue, East Las Palmas, 2nd Street) which provide connections to the West Patterson Business Park, Downtown and commercial areas and the I-5 Freeway.

Roadway Widths and Physical Characteristics

The local and collector roadways in the older portions of the city (west of Second Street, east of Ninth Street, north of Sperry Avenue, and south of M Street) generally consist of 80 foot rights-of-way, with pavement widths of 52 feet.

Streets outside of the older portion of the city have generally been constructed to more modern roadway development standards. Figures 5.6-1, 5.6-2 and 5.6-3 show the City's current standard street cross sections.

Figure 5.6-1: Typical Arterial Street Section

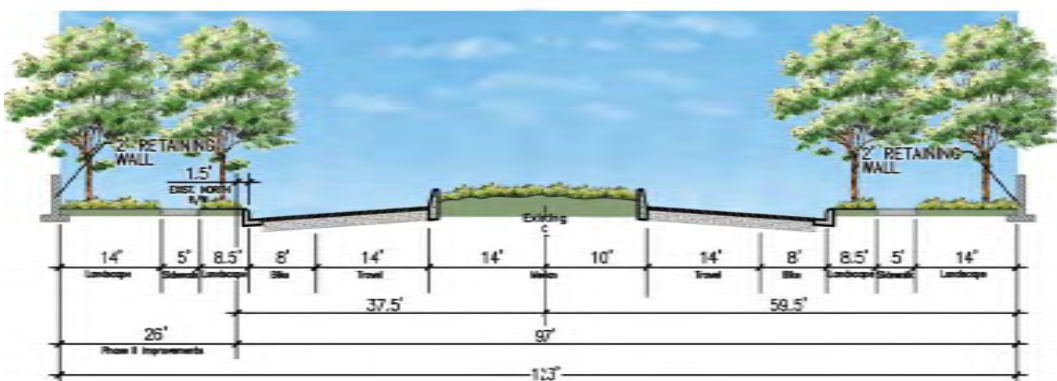


Figure 5.6-2: Typical Collector Street Section

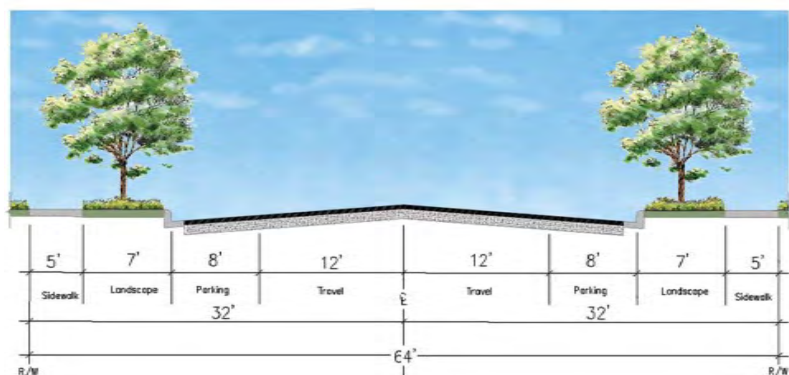


Figure 5.6-3: Typical Local Street Section

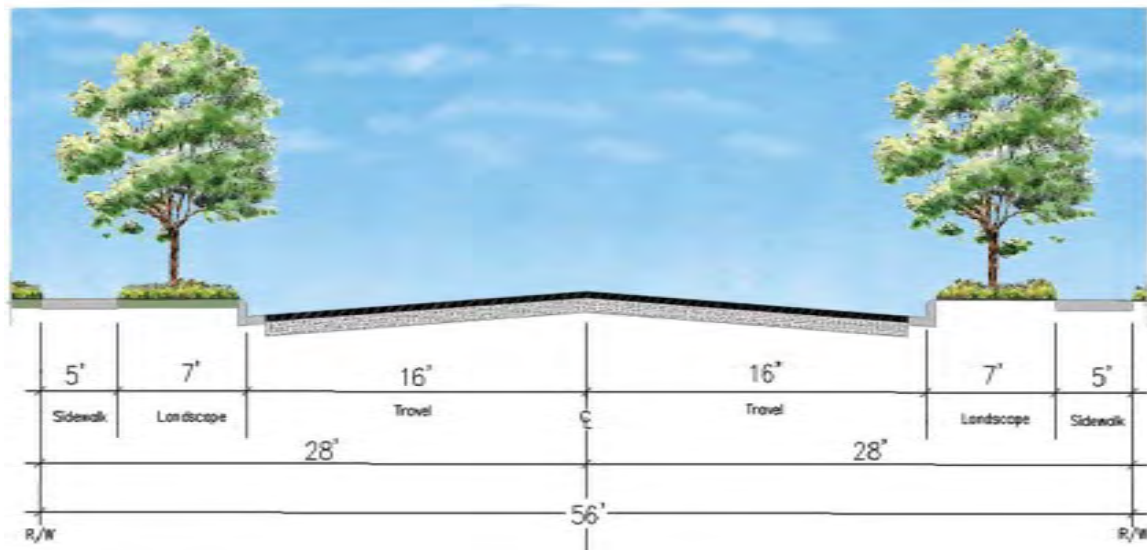
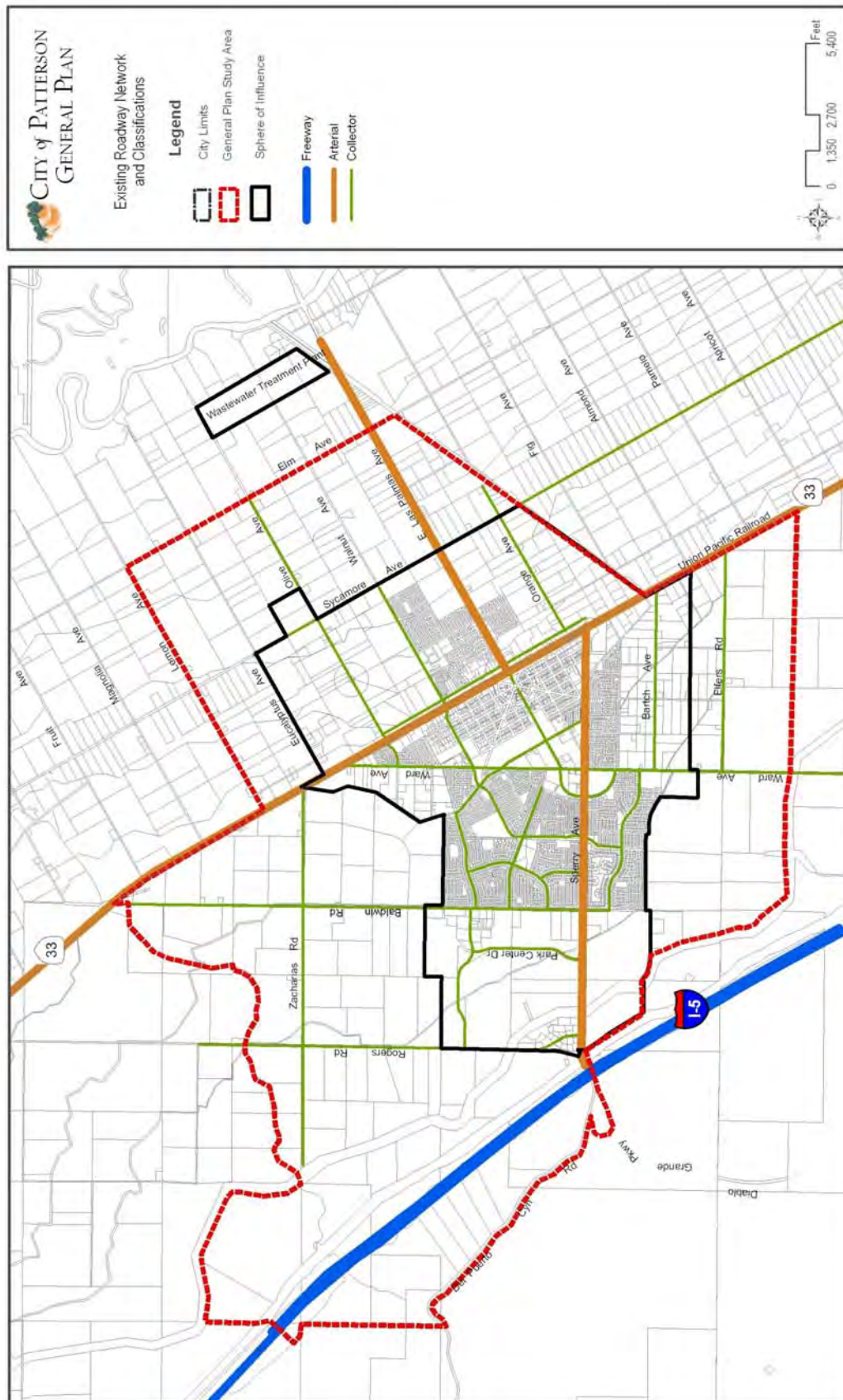


Figure 5.6-4: Existing Street Network



Level of Service

The traffic-carrying capacity of city streets is typically quantified in terms of the ability of the various intersections to accommodate peak-hour traffic volumes. Peak hours are the times of highest traffic flows, which generally occur during morning and evening commute hours. The intersections are the critical "valve" points in the street system, where right of way assignment for conflicting traffic flows is accomplished by intersection controls (e.g., signals or STOP and YIELD signs). Roadway segments with unusual characteristics, such as freeways with multiple interchanges or narrow bridges can also be traffic-limiting points.

For planning purposes, it is possible to estimate approximate daily traffic volume levels which are associated with the peak-hour traffic-carrying ability of the various types of streets. The ultimate "capacity" of a street is the maximum level of traffic which a street of a given width (number of lanes) can carry in a specified time period (per hour or per day) without resulting in extreme congestion during the peak traffic loading periods of the day. These maximum flow conditions are generally considered unacceptable, however, and special criteria are therefore used to identify lower traffic volume levels which have better (more free-flowing) peak period traffic conditions. These criteria, called "Level of Service" criteria, generally reflect traffic speeds and the percentage of the roadway's "capacity" used by the traffic.

For urban roadways, the proportion of capacity used, or volume-to-capacity (V/C) ratio, is usually the primary criterion used to characterize the levels of service. Service levels are identified by the alphabetic characters A, B, C, D, E, and F, with A representing the best (most free-flowing) peak period traffic conditions and F representing the worst conditions, with traffic volumes in excess of hourly capacity levels. Each of these levels has a corresponding V/C ratio. The level of traffic volumes which fill the maximum capacity of a roadway is assumed to have a V/C ratio of 1.00. A roadway operating at maximum capacity of a roadway is typically assumed to be the highest end of Level of Service "E", representative of heavily congested conditions. By definition, a V/C ratio cannot exceed 1.00. Because daily roadway capacities are calculated based on typical peaking characteristics, however, it is not unusual to find such an occurrence.

Level of service definitions can be used to describe traffic operating conditions on both roadway segments and intersections. Tables 5.6-1 and 5.6-2 describe the level of service criteria and the delay in seconds associated with signalized and non-signalized intersections, respectively.

Table 5.6-1: Level of Service Criteria For Signalized Intersections		
Level of Service	Description	Average Control Delay Per Vehicle (second)
A	Operations with very low delay. Progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.	<10.0
B	Operations with low delay, with good progression and/or short cycle lengths. More vehicles stop causing higher levels of delay.	>10.0 to 20.0
C	Operations with higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear when a given green phase does not serve all queued vehicles and overflow occurs. Many vehicles still pass through an intersection without stopping.	>20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are frequent.	>35.0 to 55.0
E	This is considered to be the limit of acceptable delay. Operations with high delay values indicating poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.	>55.0 to 80.0
F	Operation with delays unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and very long cycle lengths may also be contributing factors to higher delay.	>80.0
Note: > means greater than, < means less than. Source: Highway Capacity Manual Special Report No. 209, Transportation Research Board, 2000		

Table 5.6-2: Level of Service Criteria For Unsignalized Intersections		
Control Delay (seconds/vehicle)	Level of Service	Delay
0 – 10	A	Little or no delay
>10 – 15 sec/veh	B	Short traffic delays
>15 – 25 sec /veh	C	Acceptable traffic delays
>25 – 35 sec/veh	D	Long traffic delays
>35 – 50 sec/veh	E	Limit of tolerable traffic delays
> 50 sec/veh	F	Unacceptable traffic delay
Source: Highway Capacity Manual Special Report No. 209, Transportation Research Board, 2000		

Traffic conditions up to Levels of Service C or D are frequently considered to be within the range of acceptable congestion or delay for urban communities. In relatively smaller communities, however, there is frequently an aversion to almost any measurable level of delay as being incompatible with the character of the community. Heavier traffic levels and congestion will usually be tolerated for short periods during special occasions or local celebrations, but not on a regular, day-to-day basis. In such cases, it is not unusual for traffic conditions of Levels of Service A or B to be cited as the worst conditions which are acceptable to local motorists.

Intersection Controls

The City has completed a number of traffic improvements since 1998 in response to urban development. Signalized intersections are shown on Figure 5.6-5, in addition to planned signalized intersections. In addition to signals, the City has implemented a program of installing ‘traffic circles’ at selected intersections as shown on Figure 5.6-5. A traffic circle controls the flow of traffic through an intersection in a clock-wise fashion in which traffic merges with other traffic entering the intersection.

Figure 5.6-5: Signalized Intersections and Traffic Circles/Roundabouts

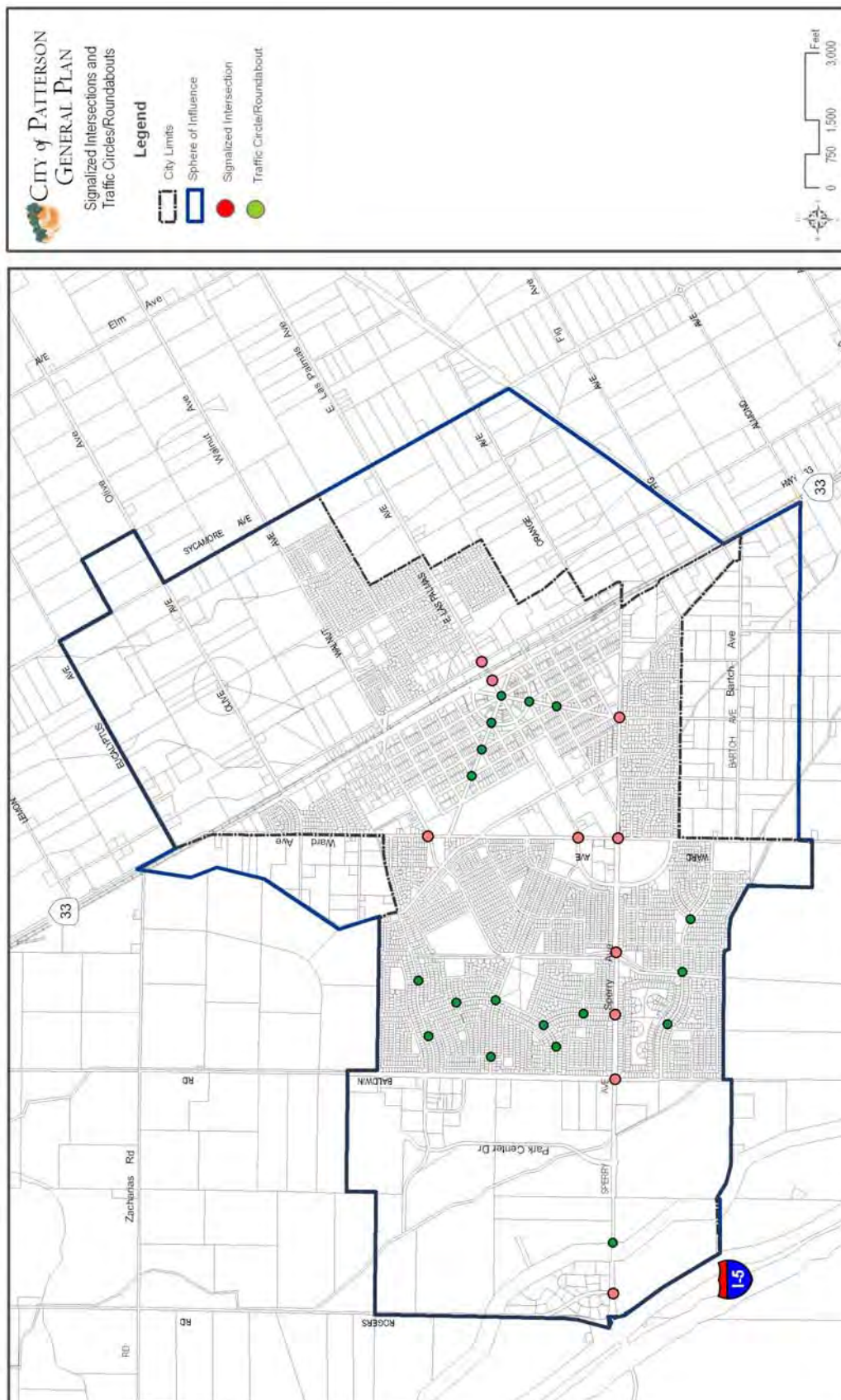


Table 5.6-3: 2009 Levels of Service for Signalized Intersections

Intersection	Existing	A.M.		P.M.	
	Control	Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	One-Way Stop	11.5	B	31.8	D
2. Sperry Ave/I-5 NB On-Ramps	One-Way Stop	10.1	B	13.4	B
3. Sperry Ave/Rogers Road	Signalized	6.9	A	6.3	A
4. Sperry Ave/Baldwin Rd	Signalized	6.0	A	5.3	A
5. Sperry Avenue/Walker Parkway	Signalized	5.3	A	5.0	A
6. Sperry Ave/American Eagle Dr	Signalized	5.3	A	5.1	A
7. Sperry Ave/Las Palmas Ave	Two-Way Stop	14.0	B	18.5	C
8. Sperry Ave/Ward Ave	Signalized	7.3	A	9.8	A
9. Sperry Ave/S Del Puerto Ave	Signalized	7.2	A	8.6	A
10. Sperry Ave/SR-33	Two-Way Stop	18.2	C	18.5	C
11. SR-33/Las Palmas Ave	Signalized	7.9	A	8.4	A
12. Ward Ave/ American Eagle Dr	Signalized	9.6	A	7.3	A
13. Ward Ave/SR-33	One-Way Stop	12.3	B	14.1	B
14. Zacharias Rd/SR-33	One-Way Stop	9.4	A	10.7	B
15. Baldwin Rd/SR-33	One-Way Stop	10.7	B	14.7	B
16. Rogers Rd/SR-33	One-Way Stop	11.9	B	13.5	B
17. SR-33/Eucalyptus	One-Way Stop	12.1	B	14.6	B
18. Olive Avenue/SR-33	Two-Way Stop	11.4	B	17.3	C
19. Walnut Avenue/M Street/SR-33	Two-Way Stop	27.2	D	28.1	D
20. Las Palmas Avenue/Sycamore Ave	All-Way Stop	19.5	C	12.9	B
21. Poplar Ave/Las Palmas Ave	One-Way Stop	15.0	B	14.1	B
22. Carpenter Rd/W Main Ave	All-Way Stop	11.8	B	12.8	B
23. Crows Landing Rd/W Main Ave	All-Way Stop	10.4	B	11.9	B

Source: TJKM, 2010

Notes: LOS = Level of Service
X = Intersection level of service
X.X = Overall intersection delay in seconds per vehicle for signalized intersections
X.X = Delay for minor movement at Unsignalized intersections

Under Existing Conditions, all study intersections operate at LOS D or better which is an acceptable level of service.

Table 5.6-4: 2009 Levels of Service for Arterials

No.	Roadway Segment	Direction	Dir. Lanes	A.M. Peak Hour			P.M. Peak Hour		
				Volume (Veh.)	Speed (mph)	LOS	Volume (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	EB	1	93			104		
		WB	1	135	23.8	C	105	23.8	C
B	Sperry Ave. e/o Rogers Rd.	EB	2	255			535	29.2	B
		WB	2	445	29.3	B	279		
C	Baldwin Rd., n/o Sperry Ave.	NB	1	93			104		
		SB	1	135	23.8	C	105	23.8	C
D	Sperry Ave. e/o Ward Ave.	EB	2	255			535	29.2	B
		WB	2	445	29.3	B	279		
E	Ward Ave., n/o Las Palmas Ave.	NB	1	361	24.1	B	159		
		SB	1	338			185	24.3	B
F	Zacharias Rd, w/o SR 33	EB	1	303	27.9	C			
		WB	1				342	27.8	C
G	SR-33, n/o Zacharias Rd.	NB	1	467	25.6	D			
		SB	1				314	27.9	C
H	SR-33, s/o Walnut Ave.	NB	1	394	27.7	C			
		SB	1				444	27.6	C
I	Ward Ave., n/o Marshall Rd.	NB	1	139			127	29.6	B
		SB	1	144	29.6	B	114		
J	SR-33, s/o Sperry Ave.	NB	1	394	27.7	C			
		SB	1				444	27.6	C
N	E Las Palmas Ave., w/o Sycamore Ave.	EB	1	343	30.0	B	312		
		WB	1	337			317	30.0	B
O	Main St., e/o of Carpenter Rd.	EB	1	222			321	32.3	B
		WB	1	236	32.3	B	239		

Counts: TJKM, 2010

Source: Highway Capacity 2000- Urban Streets Analysis

Table 5.6-5: 2008 Levels of Service for Freeways

No.	Freeway Segment	Lanes	Capacity	Peak Hour		
				Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	4	9,200	4,650	18.7	C
L	I-5, s/o Sperry Ave.	4	9,200	5,000	20.2	C
M	I-5, s/o Fink Rd.	4	9,200	3,900	15.7	B

Counts: Caltrans 2008
Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Traffic Incidents

In 2007 there were 74 reported traffic collisions within the city. This is down from the 135 reported collisions in 2006. Table 5.6-6 provides a summary of traffic incidents reported in recent years by type of incident and severity (fatality, injury, or non-injury), as well as DUI arrests, moving citations, license and non-moving citations, and parking citations. The table uses incident-per-thousand in population in order to show trends from 1998 to 2007.

Table 5.6-6: City of Patterson Traffic Incident Statistics (1998-2007)

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Ave.
Population	10,300	10,850	11,606	12,225	13,092	13,750	14,257	16,187	19,269	20,857	
Traffic Incidents Per Thousand in Population											
DUI Arrests	8.6	6.5	9.0	6.9	8.2	5.7	7.4	5.1	4.4	3.4	6.52
Collision (Injury)	1.3	2.1	1.8	2.0	2.1	2.3	1.6	2.0	0.9	1.1	1.72
Collision (Non-injury)	6.8	8.0	8.0	7.2	7.8	5.4	4.8	7.2	6.1	3.4	6.47
Collision (Fatal)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.02
Moving Citation	32.4	19.1	14.7	48.3	39.2	58.1	46.2	23.2	30.9	24.0	33.61
License & Non-moving Citation	50.9	39.2	31.9	44.7	41.4	62.3	84.5	70.6	72.2	59.3	55.7
Parking Citation	4.4	4.0	4.0	18.3	8.6	35.4	27.8	32.9	28.4	28.0	19.18

Source: City of Patterson, Police Department, 2008

Traffic Improvement Program

The City of Patterson has adopted a development impact ordinance and collects development impact fees for roadway improvements necessary to serve buildout of the 1992 General Plan. Table 5.7-7 provides a summary of the roadway and intersection improvements and associated costs in 2006 dollars. Several of these intersection/roadway improvements involve State or County roadways which are beyond the jurisdiction of the City. Improvements to these intersections would require approvals from these other jurisdictions.

New development that adversely impacts these roadways or intersections is required to either 1) install the required improvements and/or 2) pay an in-lieu fee based on the project's fair share of the cost.

Table 5.6-7: Traffic Improvements Included In The City's Development Impact Fees

Roadway/Intersection Improvement	Description	Estimated Cost
Sperry Ave/I-5 SB Offramps	Signalize; widen southbound left-turn to two lanes, add a westbound left-turn lane; add a westbound through lane, consistent with the Caltrans PSR	\$749,656
Sperry Ave/I-5 NB Onramps	Signalize; widen underpass to accommodate two eastbound through lanes and a left-turn lane, and a through lane and left and right turn lanes in the westbound direction.	\$892,498
Sperry Ave./Rogers Road	In the eastbound direction, add one left-turn lane and a shared through and right-turn lane; in the westbound direction, add two left-turn lanes and a through lane; in the southbound direction, add a through lane; in the northbound direction add a left, through and right turn lane.	\$1,198,243
Sperry Ave./Baldwin Road	Signalize. In the eastbound direction, add one left-turn lane and a shared through and right-turn lane. In the westbound direction, add one left-turn lane, a through and right turn lane. In the southbound, add two left-turn lanes. In the northbound, add a left-turn lane.	\$742,900
Sperry Ave./American Eagle Drive	Add westbound left-turn lane to Sperry Avenue and convert southbound left-turn lane on American Eagle Drive to a shared left and through lane. Add a new approach lane (the northbound leg of American Eagle Drive). In the eastbound direction, add one left-turn lane, a through and right-turn lane. In the westbound direction, add one left-turn lane and a through lane. In the southbound, add a right-turn lane. In the northbound, add a left-turn, a through and right-turn lanes.	\$1,311,115
Sperry Ave./Las Palmas Ave.	Signalize. In the eastbound direction, add a through and right-turn lane. In the westbound direction, add a left-turn lane. In the northbound, add a left-turn, and a shared through and right-turn lane.	\$968,645
Sperry Ave./Ward Ave.	In the eastbound direction, add one left-turn lane, and a through lane. In the westbound direction, add a through lane. In the southbound, add a left-turn lane. In the northbound, add a left-turn and a right-turn lane.	\$1,268,163
Sperry Ave. S. Del Puerto	In the eastbound direction, add one left-turn lane, and a shared through and right-turn lane. In the westbound direction, add a left and a shared through and right turn-lane.	\$744,050
Sperry Ave./HWY 33	Signalize intersection. Add a right-turn lane on the eastbound approach on Sperry Avenue, and add a left-turn lane on the northbound approach on State Route 33. In the eastbound direction, add one left-turn lane, and a right-turn lane. In the northbound direction, add a left turn-lane.	\$604,498
Sperry Ave./HWY 33 By-pass	Extend Sperry Avenue to Sycamore Avenue	\$2,900,000
SR 33/Las Palmas Ave.	In the northbound direction, add one right-turn lane.	\$404,800
Ward Ave./Salado Ave.	Signalize intersection and add a right-turn lane on the westbound approach on Salado Avenue. In the southbound direction, add one left-turn lane. In the westbound direction, add a left-turn lane.	\$402,615
Ward Ave./SR 33	Signalize. In the southbound direction, add one through lane. In the northbound direction, add a left-turn lane and a through lane.	\$777,544
Zacharias Rd./SR 33	Signalize. In the eastbound direction, add a left and right-turn lane. In the southbound direction, add one through lane. In the northbound direction, add a left and through lane.	\$1,673,538
Baldwin Rd./SR 33	Signalize. In the eastbound direction, add a left-turn lane. In the southbound direction, add one through lane. In the northbound direction, add a left-turn lane. Add a through lane on the southbound approach and a left-turn lane in the northbound approach. Contribute to signalizing the intersection.	\$626,319

Table 5.6-7: Traffic Improvements Included In The City's Development Impact Fees

Roadway/Intersection Improvement	Description	Estimated Cost
Rogers Rd./SR 33	Signalize. Add a right-turn lane in the southbound approach on Rogers Road, in addition to contributing to a new signal that would be needed as a result of 2025 Base conditions. In the southbound direction, add one through and right-turn lane. In the northbound direction, add a left and right-turn lane.	\$868,365
Sycamore Ave./E. Las Palmas Ave.	Signalize. In the eastbound direction, add a left-turn and a through lane. In the westbound direction, add a left and a through lane. In the southbound direction, add a left-turn lane.	\$893,406
E. Las Palmas/Poplar Ave.	Signalize. In the eastbound direction, add a through lane. In the westbound direction, add a through lane. In the southbound direction, add a left-turn lane.	\$974,913
West Main Street/Carpenter Road	Signalize. In the eastbound direction, add a left and through lane. In the westbound direction, add a through lane. In the southbound direction, add a left-turn lane. In the northbound direction, add a left-turn lane.	\$1,173,000
West Main Street/Crows Landing Road	Signalize. In the eastbound direction, add a left-turn lane. In the southbound direction, add a left-turn lane. In the northbound direction, add a left and right-turn lane.	\$879,578
Sperry Ave./Road A	Extend Sperry Avenue to Orange Avenue	\$1,196,863
Sperry Ave./Road B	Extend Sperry Avenue to Orange Avenue	\$1,689,983
TOTAL:		\$22,940,692

Source: CMCA, City of Patterson Development Impact Fee Justification Study, 2006

Notes:

1. 2006 dollars

Existing and Potential Traffic Problem Areas

The City experienced a period of rapid urban development between 1998 and 2006, accompanied by significant increases in motor vehicle traffic. To accommodate new development while maintaining the desired level of service, the City has implemented an ongoing program of traffic monitoring and the installation of improvements to the City's roadway system. Appendix 5.6 includes a list of the roadway and intersection improvements programmed for installation to accommodate existing plus future traffic through the year 2030, based on development accommodated by the 2010 General Plan and the growth in regional traffic.

In addition to improvements programmed for the coming years, the City has taken the lead in addressing the traffic issues identified in the 1992 General Plan. For example the City has:

- Constructed traffic circles at the following intersections:
 - Del Puerto and First Street
 - Del Puerto and El Circulo
 - N. Salado and El Circulo
 - N. Salad and First Street
 - N. Salado and J Street
- Established a plan line for an east-west expressway that extends Sperry Avenue east to E. Las Palmas and Sycamore Avenue;
- Implemented the re-alignment of M Street at Second Street;
- In conjunction with the County, implemented the widening of Sperry Avenue between Baldwin Road and the I-5 Interchange, and the widening of the bridge over the Delta Mendota Canal.

Notwithstanding the improvements identified in 2006, there remain several areas within the city's circulation system with the potential for future traffic problems. These include:

- Traffic operations and safety within the Plaza traffic circle;
- At grade crossings of the railroad tracks will become more problematic in the future with additional urban development on the east side of the City combined with a potential increase in train traffic;
- The I-5/Sperry Avenue interchange is expected to be operating at a less than acceptable level of service in the near future. Caltrans has prepared a Project Study Report with associated costs for improvements to the interchange and these costs are incorporated into the City's development impact fees for traffic;
- While there appears to be adequate parking supply overall to accommodate the existing parking demand, there are some areas where peak demand has resulted in a perception of parking and safety problems. Future development will need to include the provision of enough parking spaces to adequately accommodate its parking demands, so that the existing parking conditions are not aggravated.
- In recent years there has been informal discussion regarding the need for an east-west expressway to connect the I-5 freeway to areas east of Patterson. The most often cited

connection would be to wrap around the north side of the City between E. Las Palmas and the I-5 freeway to a new interchange at Zacharias Road. While the need for another interchange and its location has not been the subject of formal analysis, preliminary discussions have taken place between the City and the County. Continued development in the City and cities to the east may necessitate a more in-depth analysis of the need for this roadway and where it might be located.

Parking

The City completed a Downtown Parking Study in May 1989, which documented the city's parking supply, and existing and potential future demand in the downtown area. Although the study is about twenty years old, circumstances in the Downtown have not changed appreciably with respect to parking demand and many of the findings remain valid:

- In 1989 there was a total of 601 parking spaces downtown, with an additional 68 spaces on the outer curb of El Circulo at the fringe of downtown, for a total of 669 spaces available to serve the parking demands of downtown.
- Of the 669 total spaces, 417 are on-street spaces and 252 are off-street spaces. Of the off-street spaces, 48 are marked for private use and 204 are available for customer use.
- Of the on-street spaces, most do not have time limits; only 44 spaces do have time limits (40 at two-hour limits, 2 at 30-minute limits, and 2 at 15-minute limits).
- The peak number of spaces occupied as observed during the study was 382, at approximately 57 percent of the available parking spaces. Maximum parking space occupancy occurred between noon and 1 p.m. When the maximum spaces occupied in each block at any time of the day (not necessarily at the same time) was considered, the maximum spaces occupied in downtown totaled 402 spaces, or about 63 percent of available spaces.
- The average length of time a vehicle parked was 1.8 hours in on-street spaces, and an average of
- About two vehicles used each space between 9 a.m. and 5 p.m. Overall, spaces downtown were occupied 48 percent of the time.
- Portions of downtown experienced much higher than average parking demands and occupancy levels. These areas include most of the southern portion of downtown, most of the on-street spaces along both sides of El Circulo (except between Salado and North Third), and most of the spaces on the outer side of the Plaza.
- Parking demand downtown could increase significantly if new development is allowed to occur without providing on-site parking to meet its parking demands.
- At theoretical parking demand levels, occupancy of presently vacant or underutilized floor space downtown could increase parking demand by approximately 95 spaces. Development of presently vacant parcels could increase parking demand by approximately 445 spaces. Redevelopment of certain parcels could increase parking demand by approximately 1.35 spaces.
- At theoretical demand levels, there could be a deficit in parking supply downtown by approximately 430 spaces.

Parking space deficits could be eased by implementing one or more of the following strategies:

- Require new development to provide on-site parking adequate to accommodate the added parking demands it will generate;
- Develop one or more of the presently vacant parcels as a public parking lot(s) and allow the remaining vacant parcels to develop without on-site parking;
- Develop one or more of the presently vacant parcels as a public parking lot(s) and allow the remaining vacant parcels to develop with on-site parking;

The following changes to parking supply and demand have occurred since 1989:

- In 2004, the City acquired a vacant parcel on the north side of W. Las Palmas between El Circulo and Plaza Streets which was developed with a public parking lot consisting of 28 spaces.
- The City constructed a new city hall on the property bounded by W. Las Palmas, Plaza and Del Puerto which increased parking demand in the immediate area.
- In October, 2002, the City adopted the City of Patterson Community Design Guidelines and Downtown Physical Design Plan which sets forth a vision for the revitalization of the Downtown. The Downtown Plan estimates future demand for parking could exceed the available supply by as much as 500 spaces, and identifies two potential sites for additional parking. One site is on the west side of Salado Avenue between Plaza and El Circulo and the other on Third Street between Plaza and El Circulo. Together these parcels could support 53 surface spaces or up to 150 spaces in multi-level parking structures, but there would still be a deficit of parking spaces for future demand.

Bicycle Circulation

Bicycle facilities are classified by Caltrans as documented in Chapter 1000: Bikeway Planning and Design of the Highway Design Manual (5th Edition, California Department of Transportation, January 2007). The Caltrans standards provide for three distinct types of bikeway facilities, as generally described below:

- Class I Bikeway (Bike Path). Provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized.
- Class II Bikeway (Bike Lane). Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian crossflow are permitted. The Class II facilities are generally found along the downtown portion of the existing urbanized area. These facilities are found along parts of Las Palmas Avenue, Baldwin Road, American Eagle and 'M' Street.
- Class III Bikeway (Bike Route). Provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles. The Class III Bike Route network is most prevalent in the Central Patterson area. However, there are gaps in the bike routes. Because of these gaps, it is not possible to fully traverse the city traveling north to south or east to west using the designated bicycle network.

In 2001, the City adopted a Bicycle Transportation Master Plan (Master Plan) as an amendment to the Circulation Element of the Patterson General Plan. The Master Plan sets goals and funding options for bicycle transportation improvements for the City's 1992 General Plan area, and is intended to integrate with, and complement, the Regional Bicycle Transportation Master Plan prepared by Stanislaus County.

The existing bike network is shown in Figure 5.6-6.

Figure 5.6-6: Existing Bicycle Circulation System



Public Transit

Intercity bus service is provided by Greyhound Bus Lines, with a terminal in Modesto.

The Patterson Dial-a-Ride, operated by Stanislaus Regional Transit provides door to door intra-city service within the City only. The Newman Dial-a-ride connects Patterson with the cities of Newman and Gustine to the south.

Stanislaus Regional Transit operates fixed-route transit service within the County. Route 45 connects Gustine, Newman and Patterson with the City of Turlock, where connections can be made to Modesto on Route 10. Route 40 connects Patterson with Westley and Modesto. These routes are shown on Figure 5.6-7.

No taxi service is presently available in Patterson.

Air Service

Patterson Airport

Patterson Airport is a private airport located on the north side of Sperry Road immediately east of the Delta-Mendota Canal, with services available to the public. The airport includes one 2,500 by 75 foot north-south runway, of which the northern 665 feet is paved. The airport is an uncontrolled airway with no control tower. It is limited to crop dusting operations.

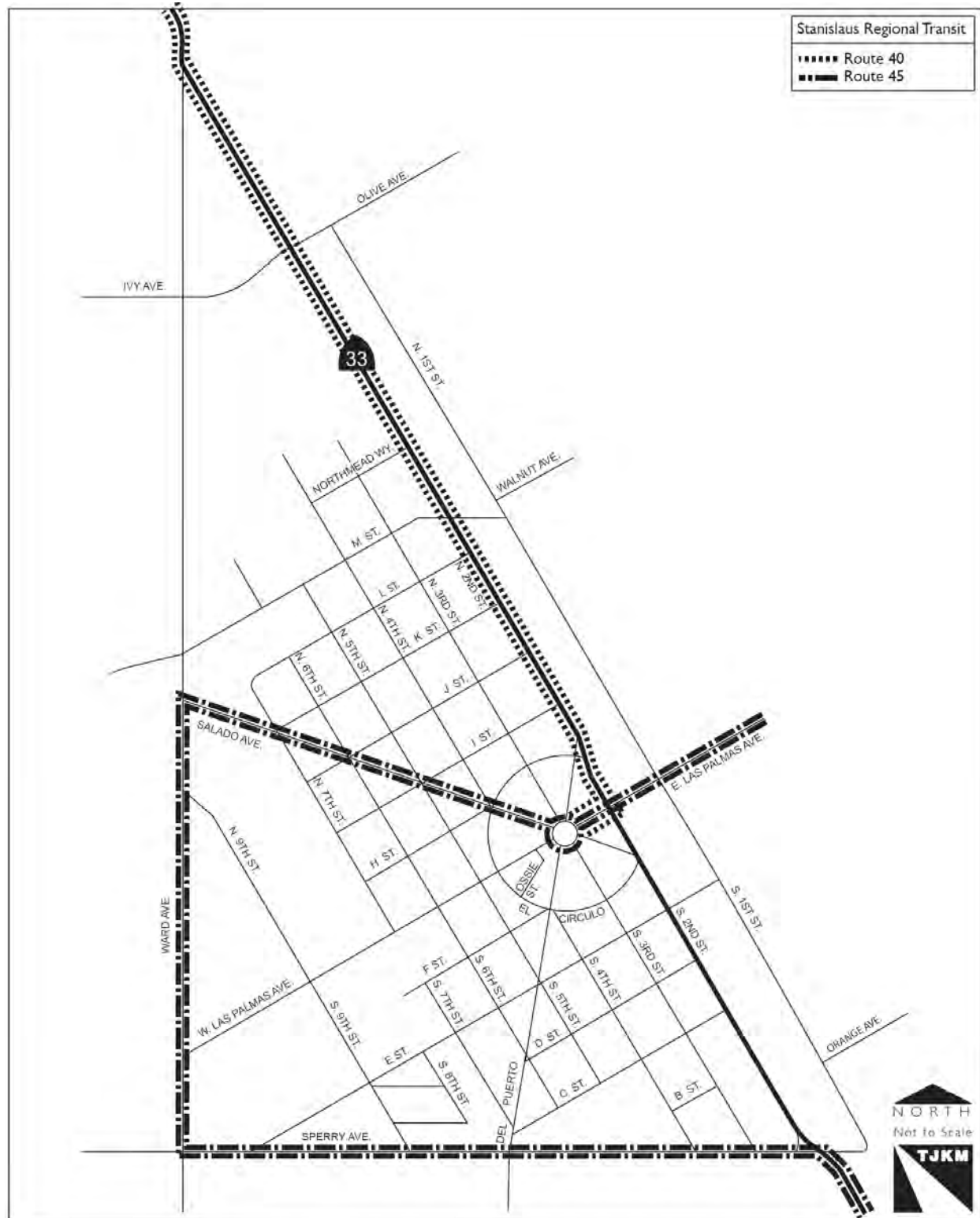
Crows Landing Auxiliary Naval Landing Field

The Crows Landing Naval Air Station is located about two miles northwest of the town of Crows Landing and about one mile south of the Patterson's southern city limits. Crows Landing previously functioned as an auxiliary landing field for operations from Moffett Field, Lemoore Naval Air Station, Alameda Naval Air Station, Castle Air Force Base, the Air National Guard, and the National Aeronautics and Space Administration (NASA). Crows Landing served as an important training and testing facility for the air operations of other air stations impacted by their volumes of air traffic or by urban encroachment.

Facilities include two concrete-paved runways in an "X" configuration. Operations and personnel support facilities occupy about 30 acres of the station's total of 1,528 acres. Historically, operations at Crows Landing were primarily training and air field practice of experienced pilots.

Stanislaus County began efforts to acquire the property in 1989. President Clinton approved the transfer in 1999, and county and federal officials finalized the details in 2004. In 2007 the County entered into negotiations with a private developer to re-develop the airfield with an industrial park mixed-use development. In the meantime, however, the airfield is not in use.

Figure 5.6-7 Transit Routes Serving Patterson



Commercial Air Service

Commercial air service is available to residents of the Study Area via Modesto City-County Airport (Harry Sham Field), approximately 16 miles east of Patterson. The current (2007) commercial carrier is United Express with service to Los Angeles and San Francisco.

Stockton Airport is located about 30 miles northeast of Patterson. In 2006 Allegiant Air began non-stop service from Stockton to Las Vegas five times per week.

Aeromexico Airlines has committed to providing service between Stockton Metropolitan Airport and Guadalajara and Morelia, Mexico when a Federal Inspection Station is built and approved by the Bureau of Customs and Border Protection. It is anticipated service will begin in the fall of 2007.

Rail Service

The California Northern Railroad (reporting mark CFNR) is one of several Class III short-line railroad companies owned by RailAmerica, Inc. It operates over Southern Pacific Railroad (SP) tracks (now Union Pacific Railroad) under a long-term lease.

This mainline route was formerly known as Southern Pacific's "West Side Line" and at one time extended from Tracy, California and then south through the West side of the San Joaquin Valley (I-5 corridor) via Patterson, Gustine, Newman, Los Banos, Oxalis and then east to Fresno via Ingle and Kerman. California Northern Railroad now operates the northern section of the line from Tracy - Los Banos. SJVR operates the southern section of the line from Oxalis to Fresno and was at one time owned by Port Railroads, Inc. (PRI; also a Kyle subsidiary) and operated by the SJVR. On April 24, 1996 the PRI was merged into the SJVR. Both the PRI and SJVR were already Kyle Railway subsidiaries. The section of track between Los Banos and Oxalis was abandoned by Southern Pacific in 1993 and the tracks were removed soon after. The Southern Pacific constructed the track from Tracy to Newman (37 miles) and from Los Banos to Armona (near Fresno) in 1891. Southern Pacific's overnight Owl passenger train (#57/58) operated over this line between San Francisco and Los Angeles into the 1960s.

An AMTRAK passenger train station is located in Denair, about 20 miles east of Patterson. Trains run multiple times per day. Major destinations include Merced, Fresno, and Bakersfield to the south (with bus and train connections to Los Angeles from Bakersfield) and Stockton, Antioch, Martinez, and Oakland to the north. In addition, the Altamont Commuter Express connects Stockton with San Jose (and points in between) with morning and evening train service. The nearest station to Patterson is in the City of Tracy.

California High Speed Rail Authority

The California High-Speed Rail Authority (Authority) was created pursuant to state legislation in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger train system offering intercity service (California Public Utilities Code § 185000 et seq.). The Authority completed several initial studies to assess the feasibility of an HST system in California and to evaluate the potential ridership for a variety of alternative corridors and station areas. Based on the results of these studies, the Authority recommended evaluation of a proposed HST system as the logical next step in the development of California's transportation infrastructure. The Authority does not have responsibility for transit systems or other intercity transportation systems and facilities, such as highways, airports, or conventional passenger rail.

In June 2000, the Authority adopted the final High-Speed Train System Business Plan (Business Plan) (California High Speed Rail Authority 2000) for an economically viable 700-mile-long (1,127-kilometer [km]-long) HST system. This system would be capable of speeds in excess of 200 miles per hour (mph)

(322 km per hour [kph]) and would travel on a mostly dedicated system with fully grade-separated tracks and with state-of-the-art safety, signaling, and automated train control systems. It would connect and serve the major metropolitan areas of California, extending from Sacramento and the San Francisco Bay Area through the Central Valley to Los Angeles and San Diego. Such a system would be expected to carry a minimum of 88 million passengers annually, representing 66 million intercity trips and 22 million intra-regional trips, by the year 2030, and would have revenues in excess of operations and maintenance costs. Of this projected HST ridership, 37% of the intercity trips (24.4 million) and 21% of the intraregional trips (4.6 million) are expected to begin or end in the Bay Area to Central Valley study region.

Following adoption of the Business Plan, the Authority commenced an environmental review process to comply with federal and state laws, in particular the National Environmental Policy Act of 1969 (NEPA) (42 USC § 4321 et seq.) and the California Environmental Quality Act (CEQA) (Cal. PRC § 21000 et seq.). The completed statewide program EIR/EIS, as the first-phase of a tiered environmental review process for the proposed HST system, evaluated three alternatives: (1) No-Project, (2) Modal (highway and airport expansion), and (3) HST. The HST alternative was selected when the program EIR was certified by the Authority via Resolution No. 05-01, signed November 2, 2005, and when FRA issued a Record of Decision on November 28, 2005.

On November 4, 2008 the voters approved Proposition 1A – also known as the “Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century” –the Act. Prop. 1A authorized the state to issue \$9.95 billion in general obligation bonds to develop high-speed rail (HSR) in California. Nine billion dollars will be used to fund the planning and construction of the high-speed rail system, while the remaining \$950 million dollars of the bond revenue would be used for capital improvements to other passenger rail lines that would connect to the HSR system. Heavy rail systems (e.g., the Los Angeles County Metro Rail and the Bay Area Rapid Transit), commuter rail lines (e.g., Metrolink in the Los Angeles area and Caltrain in the Bay Area), light rail systems (e.g., the San Diego Trolley and the San Francisco Muni), and intercity rail would all benefit from capital improvements funded by the bond measure.

The Business Plan proposes a number of route alternatives which were the subject of environmental review at the State and federal level. The preferred route and a route under consideration between the San Francisco Bay area and the San Joaquin Valley are shown on Figure 5.6-8. As shown on Figure 5.6-8, the preferred route travels along a similar alignment as State Route 99 from Fresno to Sacramento with another route turning west through Gilroy to San Jose and the San Francisco Bay area. Another alignment is currently being studied between Stockton and the Bay Area through the Altamont Pass.

According to an analysis of economic effects of the High Speed Rail system on the Central Valley prepared by Shawn Kantor, Ph.D, County Bank Professor of Economics at the University of California Merced, the HSR will have a modest effect on population growth, except in Madera and Merced Counties, and a modest effect on employment growth, except in Madera and Merced Counties.

As seen in Figure 5.6-8 the HSR system is not expected to serve Patterson directly. However commuter rail service could be extended to the City on the existing Union Pacific rail line at some point in the future.

Figure 5.6-8: High Speed Rail routes (source: California High Speed Rail Authority 2005 Statewide Programmatic EIR/EIS preferred route, and staff recommendation to Authority Board December 19, 2007)



Regulatory Setting

State Regulations

State of California Transportation Concept Reports

As described previously, Caltrans prepares a Transportation Concept Report (TCR) for each of its facilities in the area. The TCR is a long-term planning document that each Caltrans district prepares for every state highway or portion thereof in its jurisdiction. The TCR usually represents the first step in Caltrans' long-range corridor planning process. The purpose of a TCR is to determine how a highway will be developed and managed so that it delivers the targeted LOS and quality of operations that are feasible to attain over a 20-year period. These are indicated in the "route concept." In addition to the 20-year route concept level, the TCR includes an "ultimate concept," which is the ultimate goal for the route beyond the 20-year planning horizon.

Local Regulations

Stanislaus Council of Governments

The Stanislaus Council of Governments (StanCOG) is an association of local governments in the county consisting of Stanislaus County and the nine incorporated cities. StanCOG is governed by a Policy Board, consisting of elected officials from the 10 member jurisdictions. StanCOG provides transportation planning and funding for the region, and serves as a forum for the study and resolution of regional issues. In addition to preparing the County's long-range transportation plan, StanCOG assists in planning for transit, bicycle networks, clean air, and airport land uses. StanCOG also maintains a regional model that is used for developing long-range travel forecasts.

StanCOG is one of 18 federally designated Metropolitan Planning Organizations (MPOs) in the State. All MPOs are required by Federal law to prepare a Regional Transportation Plan (RTP) every 4 years (see below).

Regional Transportation Plan

The Regional Transportation Plan is a long-range transportation plan containing a list of the regional and local transportation improvements required to provide for regional mobility in Stanislaus County. StanCOG is the regional transportation planning agency and metropolitan planning organization designated to prepare the Regional Transportation Plan (RTP). The County of Stanislaus acts as a Lead Agency for non-State Highway projects identified in the Regional Transportation Plan that are located in the unincorporated area of the County, and as Responsible Agency for State Highway projects located in the unincorporated area of the County.

The RTP is required by federal and State law to list all of the projects required to achieve the region's mobility goals, including local projects drawn from the general plans of the cities and the County. The RTP must be consistent with the applicable local general plan policies. In turn, the State's General Plan Guidelines require local general plans to coordinate with and incorporate the Regional Transportation Plan, as applicable.

As per the Direction of the Stanislaus Council of Governments Policy Board, the 2007 Regional Transportation Plan represents a continuance of the policies and project priorities of the 2004 RTP. The 2007 RTP can best be described as a minor update to its predecessor, maintaining the projects (and their accompanying priorities), while continuing to adhere to StanCOG's goals and objectives.

The preferred alternative adopted by the StanCOG Board consists of those regional transportation improvements, primarily State Highway improvements, which can be funded with State and federal

transportation funds projected to be available by the year 2030. The Regional Roadway Projects provided in the 2007 RTP are shown on Figure 5.6-9. Improvements in the Patterson area (western Stanislaus County) are listed below in Table 5.6-8.

The 2007 RTP establishes (3) three tiers of projects. Tier I are those projects that have reasonably available funds and are fully funded. Those projects are expected to move forward on the schedules identified by their sponsor agencies. In the Patterson area there is one Tier I project which is to widen Sperry Avenue to reconstruct the I-5 interchange and widen Sperry to a 4-lane expressway from south First Street to Ward Avenue and from Rogers Road to I-5.

Tier II projects are those projects that identify actual needs. In the Patterson area there are 19 Tier II projects. These projects are not fiscally constrained and do not have any funding forecasted at the moment. These projects are ideal candidates to move into Tier I once funding has been identified. Projects in this category accurately portray the needs of local agencies and the severe backlog of maintaining the current levels of service in the transportation system. A newly created Tier Ia list of projects is a category that reflects priority projects for local agencies. These projects while not fully funded are currently in some stage of development.

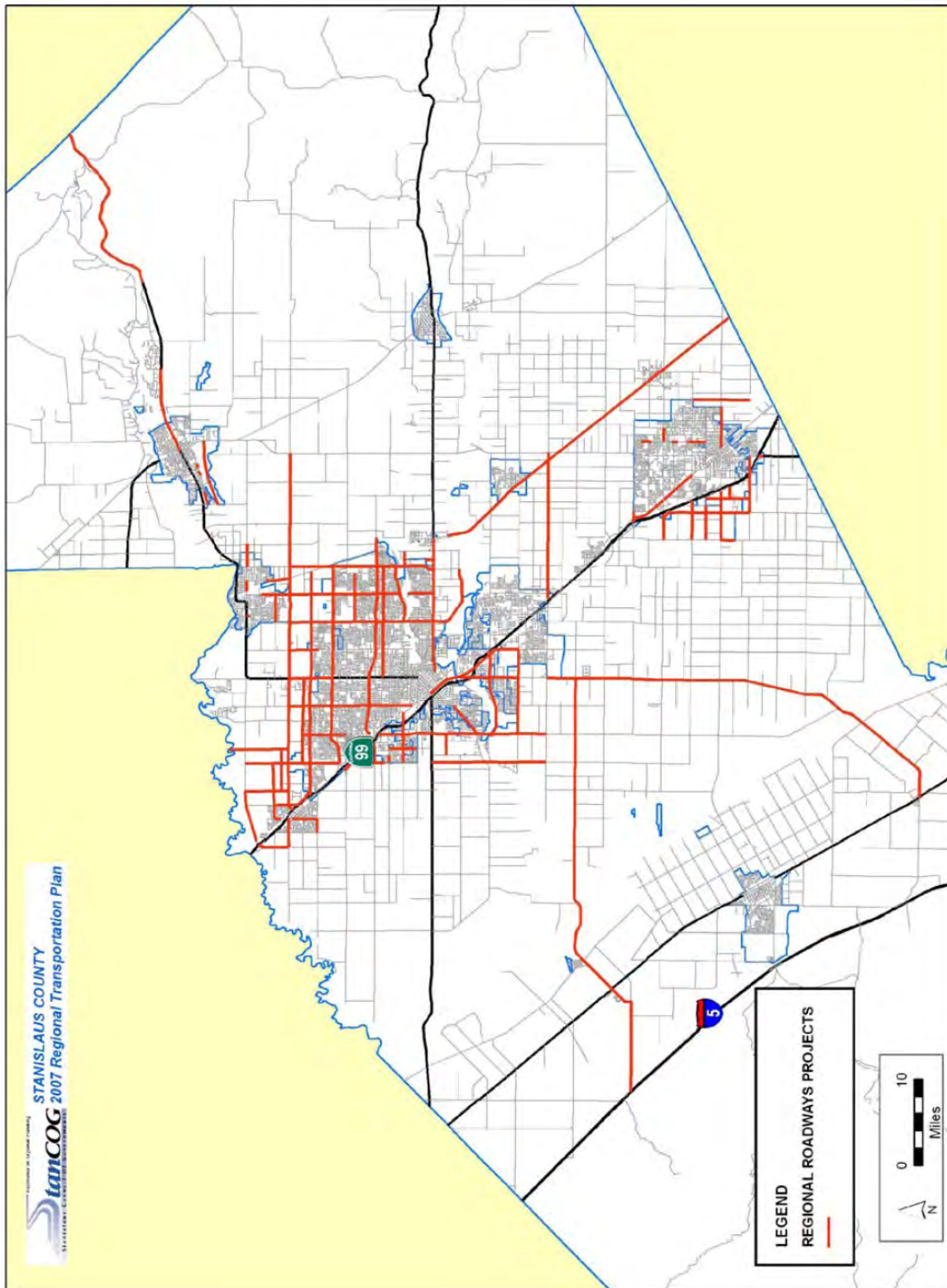
Table 5.6-8: Regional Transportation Plan Improvements In The Patterson Area

Project Type	Location	Project Limits	Description	Total Project Cost
Regional Roadways – Tier I Fiscally Constrained				
Widening	I-5 /Sperry Avenue	Sperry Avenue from South First Street to Ward Avenue and Rogers Road to I-5	Reconstruct Sperry interchange and Widen Sperry to a 4 lane expressway.	\$39,600,000
Regional Roadways – Tier II Non-Fiscally Constrained				
Widening	Sperry Avenue	Sperry Avenue bridge over Delta Mendota Canal and Calif. Aqueduct	Widen Sperry to 4 lanes	\$5,000,000
Widening	Rogers Road	Sperry Avenue north to Delta Mendota Canal	Widen to 4 lanes	\$200,000
Expressway	Sperry Road/Orange Avenue	Future by-pass south of Las Palmas from west of San Joaquin River to connect with Sperry Avenue and I-5	New 4-lane expressway	\$19,200,000
New Construction	Rogers Road	Delta Mendota Canal bridge widening at Rogers Road	Widen from 2 to 4 lanes	\$5,000,000
New Construction	Rogers Road	Sperry Avenue southbound	Completion of the collector	\$4,000,000
New Construction	Park Center Drive	Sperry Avenue southbound	Completion of the collector	\$5,000,000
Widening	Baldwin Road	Keystone Pacific Parkway to approximately Zacharias Road	Widen from 2 to 4 lanes	\$3,000,000
New Construction	Ivy Road	To SR 33	50' extension o 2-lane road	\$73,389
Widening	Las Palmas Avenue	2 nd Street to Sycamore Avenue	Widen Las Palmas to 4 lanes	
Widening	Baldwin Road	Sperry Avenue to approximately Zacharias Road	Widen from 2 to 4 lanes	
Widening	M Street	1 st Street to ward Avenue	Widen M Street to 4 lanes	\$300,000
Widening	Ward Avenue	Ivy to 9 th Street	Widen to 4 lanes	\$400,000
Widening	Interstate 5	San Joaquin County line to Sperry Avenue	Widen from 4 to 6 lanes	\$89,400,000
Widening	State Route 33	Within Patterson City limits	Widen from 3 to 5 lanes	\$48,000,000
New Expressway	Southern Expressway south of current City limits	Future Patterson by-pass south of Las Palmas from west of San Joaquin River to connect with Sperry Avenue and I-5	New 4-lane expressway	\$19,200,000
New Interchange	I-5 and Zacharias Road	Zacharias Road west to I-5	Extend existing Zacharias Road west and construct new interchange at I-5	\$30,000,000
New Expressway	North expressway	Future Patterson by-	Expressway to Las	\$19,200,000

Table 5.6-8: Regional Transportation Plan Improvements In The Patterson Area

Project Type	Location	Project Limits	Description	Total Project Cost
	north of current City limits	pass	Palmas Avenue that connects with Zacharias Road interchange	
Widening	Baldwin Road	Keystone Pacific Parkway to approximately Zacharias Road	Widen from 2 to 4 lanes	\$3,000,000
Widening	West Main Street	Widen W. Main Street bridge at San Joaquin River	Widen from 2 to 4 lanes	\$20,000,000
Regional Roadways Tier Ia – Non-Fiscally Constrained				
Widening	Ward Avenue	SR 33 south to City limits	Widen from 2 to 4 lanes and realign intersection	\$1,895,000
Master Roadways and Highways – Tier II Fiscally Constrained				
Widening	Interstate 5	San Joaquin County line to Sperry Avenue	Widen from 4 to 6 lanes	\$74,500,000
Widening	State Route 33	Within Patterson City limits	Widen from 3 to 5 lanes	\$40,000,000
Interchange	I-5 at Fink Road	I-5 at Fink Road	Reconstruct interchange	\$25,000,000
Bus and Transit Projects – Tier I Fiscally Constrained				
Bus	County/Patterson	Westside Stanislaus County	Transfer/Intermodal facility	\$500,000
Bicycle and Pedestrian Projects				
Signage/stripping	SR 33	Through Patterson	Signage/stripping	\$8,500
Signage/stripping	Ward Avenue	Sperry Avenue to Las Palmas Avenue	Signage/stripping	\$500
Widening	Las Palmas Avenue	First Street to roundabout	Widening	\$10,000
Widening	Las Palmas Avenue	9 th Street to Ward Avenue	Widening	\$20,000
Widening	Las Palmas Avenue	Poplar to Hartley	Widening	\$230,000
Widening	Sperry Avenue	Ward Avenue to Calif. Aqueduct	Widening	\$200,000
Widening	SR 33	SR 33 to San Joaquin County Line	Widening	\$1,350,000
Railroad At Grade Crossing Projects				
Grade Crossing	Del Puerto Canyon	Del Puerto Creek	Railroad crossing improvements	
Grade Crossing	Fink Road	SR 33	Railroad crossing improvements	
Grade Crossing	Sperry Avenue	Ward Avenue to Calif. Aqueduct	Railroad crossing improvements	
Grade Crossing	Sycamore Avenue	Fruit Road to Marshall Road	Railroad crossing improvements	
Grade Crossing	Ward Avenue	South of Bartch Road to Marshall Road	Railroad crossing improvements	
Source: Stanislaus Council of Governments 2007 Regional Transportation Plan				

Figure 5.6-9: Regional Roadway Improvements Recommended by the 2007 Regional Transportation Plan availability



In 2009, StanCOG embarked on a comprehensive update of the Regional Transportation Plan. A draft Plan was completed and an environmental impact report is currently (February, 2010) being prepared with hearings for adoption expected later in 2010. According to the StanCOG website¹, the draft goals of the 2011 RTP are:

Mobility: Improve the opportunity and ability of citizens to travel between jobs, schools, homes and improve the efficiency of goods movement.

Safety and System Preservation: Operate and maintain the transportation system to ensure public safety and to protect the region's transportation investment.

Environmental Quality: Consider the environmental impacts of proposed projects in making transportation investments thus minimizing direct and indirect impacts on the environment for cleaner air and natural resource protection.

Economic/Community Vitality: Foster job creation and business attraction, retention and expansion by improving the movement of goods, services and our local workforce while revitalizing our communities.

Social Equity: Promote and provide equitable opportunities to access transportation services for the full spectrum of the population. Ensure that economically, physically and socially disadvantaged groups have access to transportation services and share in benefits of transportation improvements.

Stanislaus County General Plan

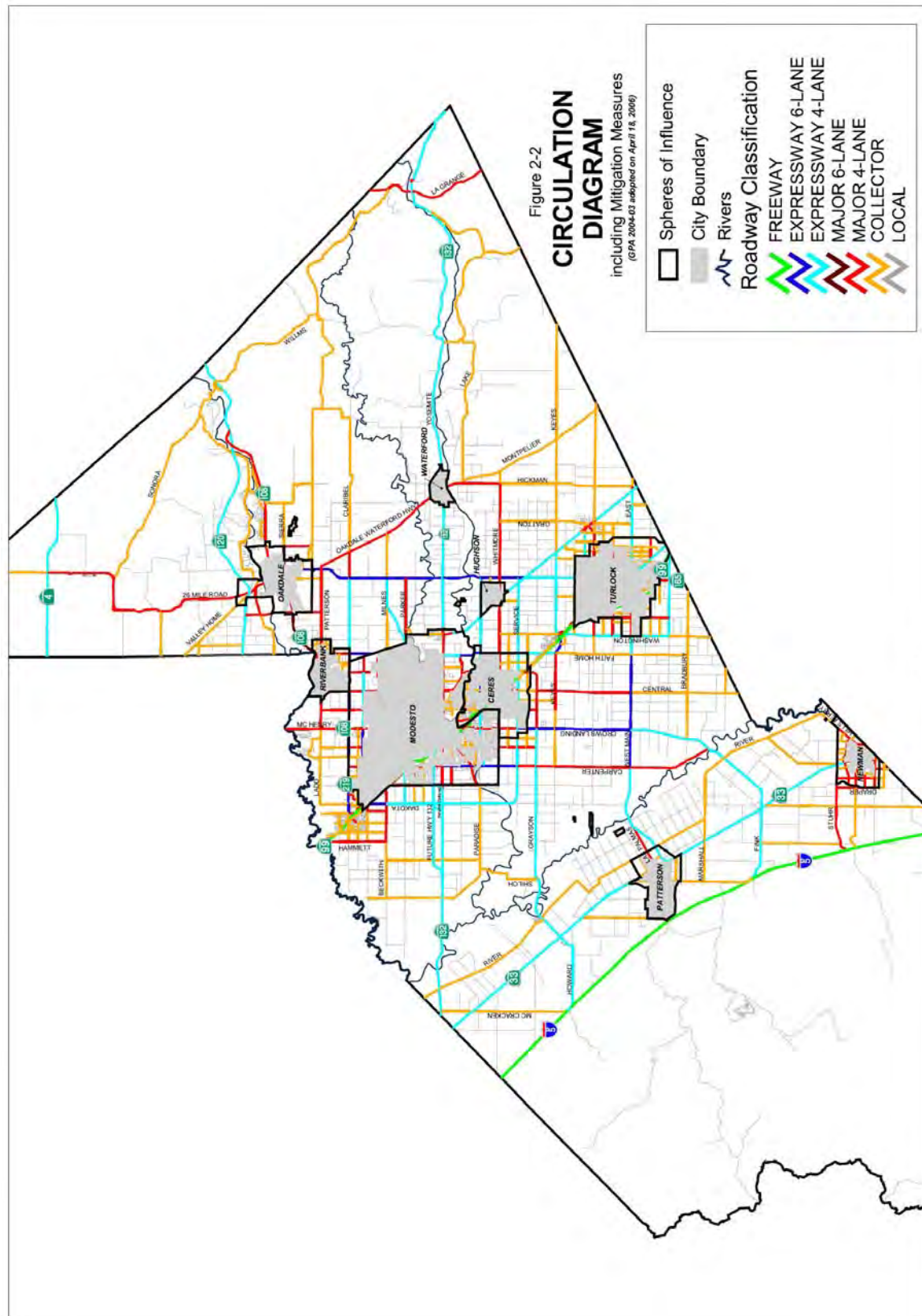
Non-State roadways outside the City limits within the Study Area are maintained and improved by Stanislaus County. The Circulation Element of the County General Plan depicts corridors for public mobility and access which are planned to meet the needs of the existing and anticipated population of Stanislaus County. The Circulation Element serves to: (1) provide a system of roads throughout the County which reflects land use needs; and (2) support a broad range of transportation modes. Development of these facilities is based on the needs generated by future land use and represents the anticipated needs of each area when fully developed to the uses and densities proposed by the General Plan.

The County's Circulation Element diagram is provided in Figure 5.6-10 which depicts the roadway classifications applied in the unincorporated areas around Patterson.

Within the Spheres of Influence of any city, roadway improvements, dedications, building setbacks, and road reservations shall meet the development standards of the city consistent with the Spheres of Influence Policy in the Land Use Element of the General Plan, except in those areas subject to an individual city/county agreement.

¹ <http://www.stancog.org/pdf/2011-rtp-draft-goals.pdf> accessed February, 2010

Figure 5.6-10: Stanislaus County Circulation Element Diagram, 2004



City of Patterson Capital Improvement Program (CIP)

The City of Patterson has adopted a five-year capital improvement program and development impact fees for transportation improvements in accordance with Government Code section 66000 et seq. The CIP and development impact fee are intended to implement roadway and intersection improvements identified in previous circulation studies to accommodate planned development anticipated through buildout of the City's currently adopted General Plan. Appendix 5.6 provides a complete listing of roadway and intersection improvements required for buildout of the City's currently adopted General Plan. New development is required to install the improvements required to serve the project and to pay development impact fees for off-site improvements.

City of Patterson Bicycle Master Plan

As discussed in the Setting section, above, the City has adopted a Bicycle Transportation Master Plan (Master Plan) which sets forth goals and funding options for bicycle transportation improvements for the City's 1992 General Plan area.

City of Patterson Zoning Ordinance

Chapter 18.72 of the Patterson Municipal Code (zoning) sets forth off-street parking and loading standards for allowable uses within the various zones. These standards are applied during the development review process to promote public safety, visual enhancement, and adequate on-site parking for all uses; avoid the need for off-site parking, use of alleys except for service vehicles, related services, and residential access.

Standards of Significance

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G. A transportation/traffic impact is considered significant if implementation of the proposed General Plan would result in the following:

1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).
2. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.
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.
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans or programs supporting alternative transportation.

City of Patterson Roadway Standards

The City's currently adopted 1992 General Plan, Policy III.A.2 states that "The City shall endeavor to maintain a Level of Service (LOS) "D", as defined by the 2000 Highway Capacity Manual (HCM) or subsequent revisions, on all streets and intersections within the City." Thus, for impacts to City streets and intersections, LOS D will be applied.

County and Caltrans Standards

The minimum acceptable level of service standard for Stanislaus County roadway segments is LOS C. Therefore, this report uses LOS C as the minimum acceptable standard and mitigation measures are

recommended where service levels are below LOS C along roadways within the unincorporated areas of Stanislaus County.

Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and arterials. Caltrans standards strive to maintain acceptable traffic operations on state facilities between LOS C and LOS D. Mitigation measures are recommended where service levels exceed this LOS C/D transition.

Impacts associated with potential conflicts with air traffic (threshold of significance [3] above) is addressed in Section 5.12 - Hazards and Hazardous Materials).

Project Impacts and Mitigation Measures

Methodology

To assess potential impacts relating to on-road motor vehicle traffic, a traffic impact study was prepared by TJKM Transportation Consultants which is provided in its entirety as Appendix 5.6. The methodology used in the study is described below.

The 2000 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board, and contains the specific criteria and methods to be used in assessing LOS. There are several software packages that have been developed to implement HCM. In this study the Synchro software was used to calculate the LOS at the study intersections shown on Figure 5.6-11. A detailed description of the methodology is provided in Appendix 5.6.

The method of unsignalized intersection capacity analysis used in this study is from Chapter 10, "Unsignalized Intersections" of the Highway Capacity Manual, Special report No. 209, Transportation Research Board, updated October 2000. This method applies to two-way STOP sign or YIELD sign controlled intersections (or one-way STOP sign or YIELD sign controlled intersections at threeway intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers.

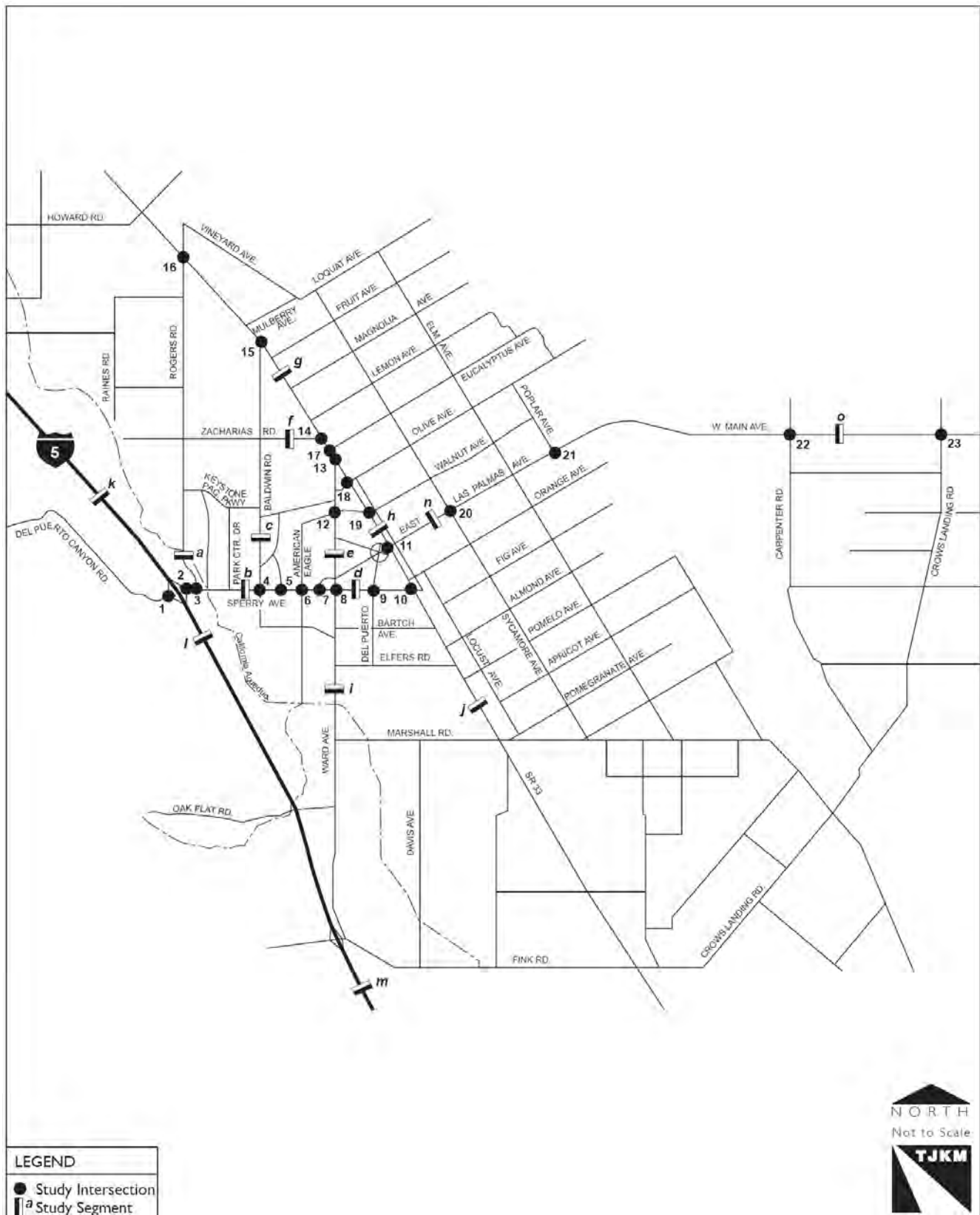
Thus, the capacity of the controlled legs of an intersection is assumed to be based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for Two-Way STOP controlled intersections is somewhat different from the criterion used in Chapter 9 for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The LOS is reported for the minor approach. Depending on the availability of gaps, the minor approach might be operating at LOS D, E, or F while the intersection LOS operates at LOS C or better. A minor approach that operates at LOS D, E, or F does not automatically translate into a need for a traffic signal. A signal warrant would still needs to be met. There are many instances where only a few vehicles are experiencing LOS D, E, or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Figure 5.6-11: Traffic Study Intersections (see also Table 5.6-3)



The justification for the installation of a traffic signal at an intersection is based on the warrants stated in the California Manual on Uniform Traffic Control Devices (MUTCD) published by Caltrans and the Federal Highway Administration (FHWA). The decision to install a signal should not be based solely upon the warrants, since the installation of traffic signals may increase certain types of collisions. Delay, congestion, approach conditions, driver confusion, future land use or other evidence of the need for right of way assignment beyond that which could be provided by stop signs must be demonstrated.

Other improvement criteria considered include traffic conditions where a left-turn pocket might be required to safely accommodate projected volumes due to safety reason. For example, for safety reasons, due to higher speed on major streets it is safer to provide left-turn pocket to channelize heavy left-turning traffic so that it will not impede the flow of through traffic. This will also provide for safer and better traffic operations on the roadway. For this study, a left-turn pocket will be recommended when the projected left-turn volumes at a major intersection are more than 150 vehicles during the peak hour.

The following four alternatives were considered for the 2030 growth boundary in the traffic study:

- The No Project Alternative consists of continued development of the City in accordance with the currently adopted General Plan. It is projected that the 20-year plan will add approximately 4,336 new dwelling units and approximately 9.4 million square feet of additional non-residential floor space. The population holding capacity is about 33,000.
- The Compact Development Alternative is projected with a population holding capacity of 46,360 for the 20-year plan including approximately 9,146 new dwelling units and 15 million square feet of additional non-residential floor space.
- The Jobs Emphasis Alternative accommodates a 20-year population of 47,831 with approximately 9,704 new dwelling units and 19.8 million square feet of additional nonresidential floor space. This alternative emphasizes job-creation with the designation of additional land for industrial development in the first twenty years extending west of Rogers Road north of the Patterson Business Park and between the canals.
- The Planning Commission Environmental Review alternative evaluates the cumulative traffic impact from the development of the proposed 15,680 new dwelling units and 18.7 million square feet of additional non-residential floor space. The population holding capacity of the 20-year plan is about 64,389.

Accordingly, the scenarios studied include the following:

- Existing Traffic Conditions
- 2030 Cumulative plus No Project Alternative
- 2030 Cumulative plus Compact Development Alternative
- 2030 Cumulative plus Jobs Emphasis Alternative
- 2030 Cumulative plus Planning Commission Environmental Review Alternative

The traffic model currently used by StanCOG, and the one used for this EIR, models future traffic to the year 2030. For the 2050 development timeframe, trips associated with development associated with each Equal-Weight Alternative for the 20 to 40 year buildout growth boundaries was added to the 2030 results derived from the traffic model and the trips were distributed to the roadway segments shown on Figure 5.6-11. The resulting traffic volumes and levels of service for individual roadway segments is provided for 2050 for each alternative.

Forecasting Model and Assumptions

The Stanislaus Council of Government (StanCOG) countywide gravity based average daily traffic (ADT) model was used as the basis for the development of a peak hour model. To reflect the latest travel patterns, the model was calibrated to the latest peak hour turning movements at 23 study intersections and link segments. After calibration, all study intersections and roadway links in the model reflect accuracy within 10 percent of the traffic counts.

Previously approved and reasonably foreseeable development anticipated in the region surrounding the City that will contribute traffic to the cumulative impacts associated with the draft General Plan were added. Some of the major approved project includes the West Patterson Business Park, Villages of Patterson, while pending projects under review include Patterson Logistics, Wal-Mart and the Diablo Grande project.

One of the largest proposed projects in the area is West Park. The West Park Specific Plan covers an area of about 4,800 acres that includes the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility (CLAF) and approximately 3,276 acres of undeveloped land surrounding the former CLAF. The project site is located south of the City of Patterson between Interstate 5 and the California Aqueduct and State Route 33.

Future freeway interchange improvement needs were assumed for three existing interchanges and two potential future interchanges on I-5. Potential future interchange at Zacharias Road and I-5 and at Oak Flat Road and I-5 (that will primarily serve the West Park project area) were assumed.

Compact Development Alternative Traffic in the 20-Year Growth Boundary

Impact 5.6-1 Development accommodated by the Compact Development alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2030 which could reduce the level of service on roadways and intersections serving the Study Area. This impact is considered potentially significant.

This scenario involves adding trip generation associated with the Compact Development alternative to the base 2030 cumulative traffic. The Compact Development alternative includes approximately 9,146 new dwelling units and 15 million square feet of additional non-residential floor space within the 20-year growth boundary.

Trip Generation

The trip generation estimates for the proposed alternative are summarized in Table 5.6-9.

Table 5.6-9: 2030 Trip Generation Associated With the Compact Development Alternative

Land Use / (ITE Code)	Size / Units	A.M. Peak					P.M. Peak				
		Rate	In:Out %	In	Out	Total	Rate	In:Out %	In	Out	Total
Single Family (210)	4,532	0.75	25:75	850	2,549	3,399	1.01	63:37	2,884	1,694	4,577
Multi Family (230)	4,614	0.44	17:83	345	1,685	2,030	0.52	67:33	1,608	792	2,399
Retail (820)	3,281	1.00	61:39	2,001	1,280	3,281	3.73	49:51	5,997	6,241	12,238
Service/Office (710)	2,178	1.55	88:12	2,971	405	3,376	1.49	17:83	552	2,694	3,245
Industrial (130)	11,757	0.84	82:18	8,098	1,778	9,876	0.86	21:79	2,123	7,988	10,111
Total (du)	9,146										
Total (ksf)	17,216			14,265	7,697	21,962			13,163	19,408	32,571

Source: TJKM, 2010

Notes:

1. du = dwelling unit ksf = thousand square feet

Level of Service Analysis

The projected 2030 Cumulative plus Compact Alternative peak hour turning movement volumes for study intersections are shown in Figure 5.6-12. Under this scenario, 18 of the 23 study intersections are expected to operate at an unacceptable LOS E/F. Tables 5.6-10 and 5.6-11 summarize the intersection and link level of service conditions respectively for this alternative. The detailed calculation sheets are contained in Appendix 5.6.

**Table 5.6-10: 2030 Intersection Levels of Service –
Compact Development Alternative**

Intersection	Without Mitigation						With Mitigation					
	Existing Control	A.M.		P.M.		Mitigated Control	A.M.		P.M.		Delay	LOS
		Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS		
1. Sperry Ave/I-5 SB Off-Ramps	One-Way Stop	120.0	F	120.0	F	Signal	23.9	C	36.9	D		
2. Sperry Ave/I-5 NB On-Ramps	One-Way Stop	120.0	F	120.0	F	Signal	10.4	B	18.1	B		
3. Sperry Ave/Rogers Road	Signal	120.0	F	120.0	F	Signal	41.6	D	37.6	D		
4. Sperry Ave/Baldwin Rd	Signal	120.0	F	120.0	F	Signal	28.2	C	20.9	C		
5. Sperry Avenue/Walker Parkway	Signal	39.0	D	25.4	C	Signal	15.1	B	13.6	B		
6. Sperry Ave/American Eagle Dr	Signal	120.0	F	120.0	F	Signal	42.4	D	35.5	D		
7. Sperry Ave/Las Palmas Ave	Two-Way Stop	32.4	D	120.0	F	Signal	6.9	A	7.8	A		
8. Sperry Ave/Ward Ave	Signal	120.0	F	120.0	F	Signal	34.7	C	33.7	C		
9. Sperry Ave/S Del Puerto Ave	Signal	6.8	A	20.4	C	Signal	5.8	A	7.0	A		
10. Sperry Ave/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	28.0	C	18.4	B		
11. SR-33/Las Palmas Ave	Signal	17.9	B	11.7	B	Signal	37.4	D	23.5	C		
12. Ward Ave/ American Eagle Dr	Signal	94.9	F	100.1	F	Signal	21.0	C	15.7	B		
13. Ward Ave/SR-33	One-Way Stop	1.0	A	0.6	A	Signal	4.2	A	4.3	A		
14. Zacharias Rd/SR-33	One-Way Stop	120.0	F	120.0	F	Signal	37.5	D	29.1	C		
15. Baldwin Rd/SR-33	One-Way Stop	5.5	A	1.4	A	Signal	3.1	A	1.4	A		
16. Rogers Rd/SR-33	One-Way Stop	5.7	A	0.2	A	Signal	5.9	A	7.3	A		
17. SR-33/Eucalyptus	One-Way Stop	120.0	F	120.0	F	Signal	5.1	A	7.5	A		
18. Olive Avenue/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	17.3	B	14.1	B		
19. Walnut Avebue/M Street/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	15.5	B	17.6	B		
20. Las Palmas Ave./Sycamore Ave	All-Way Stop	120.0	F	120.0	F	Signal	35.1	D	47.4	D		
21. Poplar Ave/Las Palmas Ave	One-Way Stop	29.9	D	120.0	F	Signal	4.6	A	10.9	B		
22. Carpenter Rd/W Main Ave	All-Way Stop	120.0	F	120.0	F	Signal	8.3	A	23.1	C		
23. Crows Landing Rd/W Main Ave	All-Way Stop	120.0	F	120.0	F	Signal	7.0	A	7.1	A		

Source: TJKM, 2010

Notes: LOS = Level of Service
X = Intersection level of service
X.X = Overall intersection delay in seconds per vehicle for signalized intersections
X.X = Delay for minor movement at Unsignalized intersections
Signal = Mitigated

**Table 5.6-11: 2030 Road Segment Levels of Service –
Compact Development Alternative**

No.	Roadway Segment	Direction	Dir. Lanes	A.M. Peak Hour			P.M. Peak Hour		
				Volume (Veh.)	Speed (mph)	LOS	Volume (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	EB	1	314			477		
		WB	1	730	27.5	C	679	26.5	D
B	Sperry Ave. e/o Rogers Rd.	EB	2	531			1827	27.7	C
		WB	2	2059	27.7	C	1777		
C	Baldwin Rd., n/o Sperry Ave.	NB	1	355	23.2	C	425	23.4	C
		SB	1	353			421		
D	Sperry Ave. e/o Ward Ave.	EB	2	154			516	29.2	B
		WB	2	505	29.2	B	447		
E	Ward Ave., n/o Las Palmas Ave.	NB	1	169			513	23.9	C
		SB	1	461	24.0	B	270		
F	Zacharias Rd, w/o SR 33	EB	1	618			812	31.9	B
		WB	1	714	31.9	B	729		
G	SR-33, n/o Zacharias Rd.	NB	1	470			463	25.7	D
		SB	1	639	27.4	C	368		
H	SR-33, s/o Walnut Ave.	NB	1	413			825	27.4	C
		SB	1	785	27.3	C	646		
I	Ward Ave., n/o Marshall Rd.	NB	1	370			1489	28.6	B
		SB	1	1575	28.8	B	737		
J	SR-33, s/o Sperry Ave.	NB	1	540			1089	26.5	D
		SB	1	1108	26.4	D	688		
N	E Las Palmas Ave., w/o Sycamore Ave.	EB	1	521			812	29.5	B
		WB	1	895	29.2	B	755		
O	Main St., e/o of Carpenter Rd.	EB	1	504			1815	31.6	B
		WB	1	1588	31.8	B	519		
Source: TJKM, 2010 and Highway Capacity 2000- Urban Streets Analysis									

Figure 5.6-12: 2030 Peak Hour Turning Movements – Compact Development Alternative

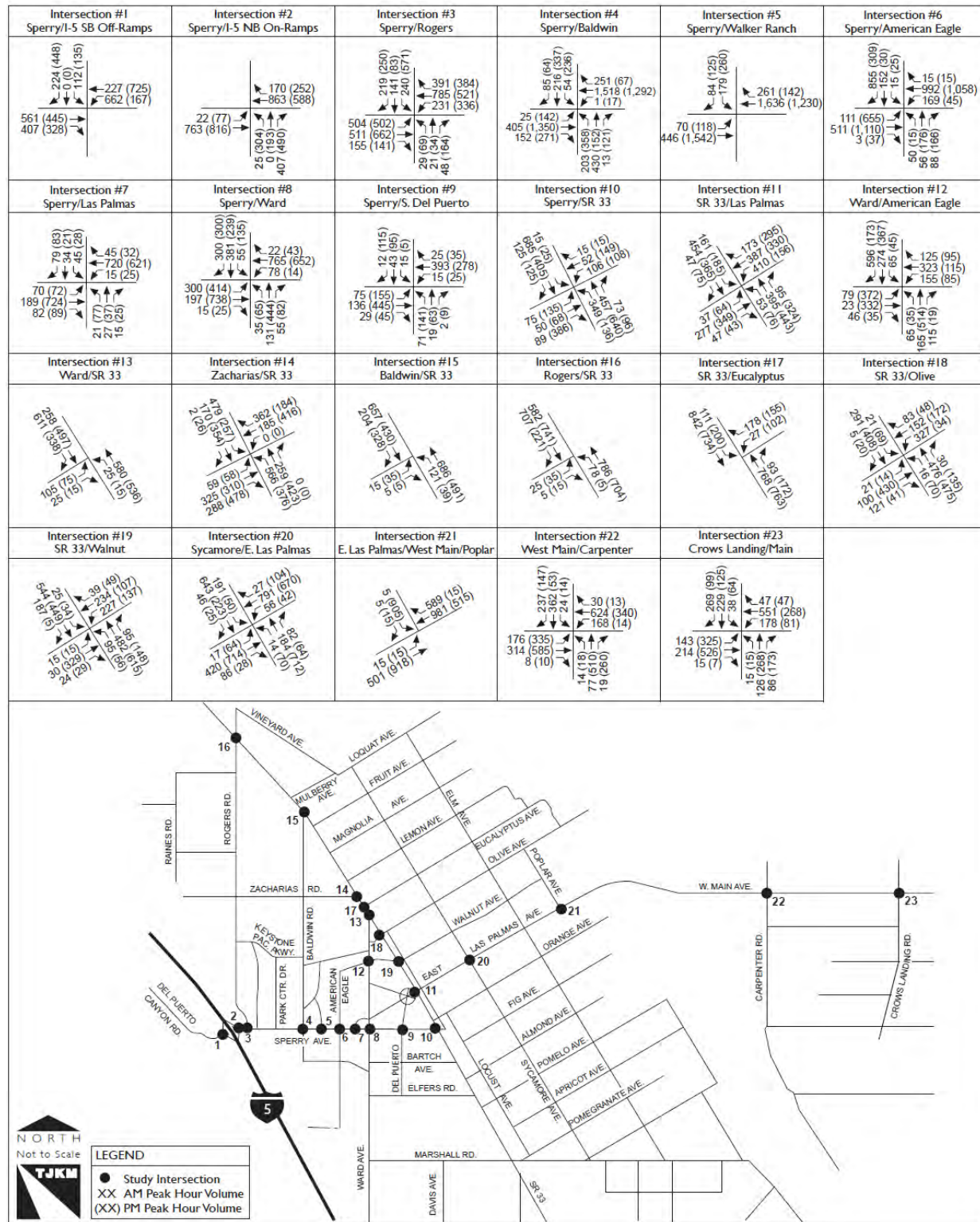
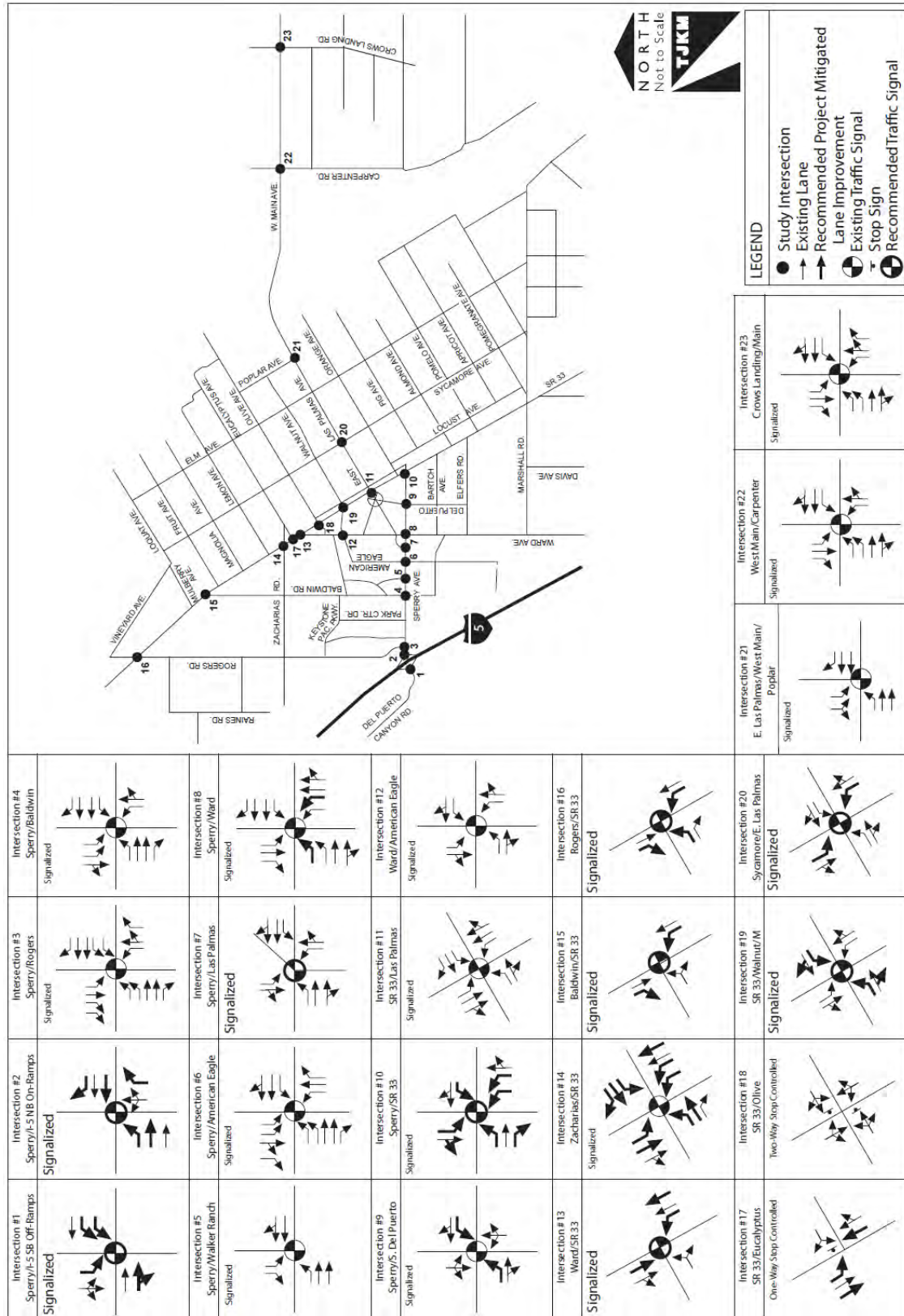


Figure 5.6-13: 2030 Lane Configurations – Compact Development Alternative



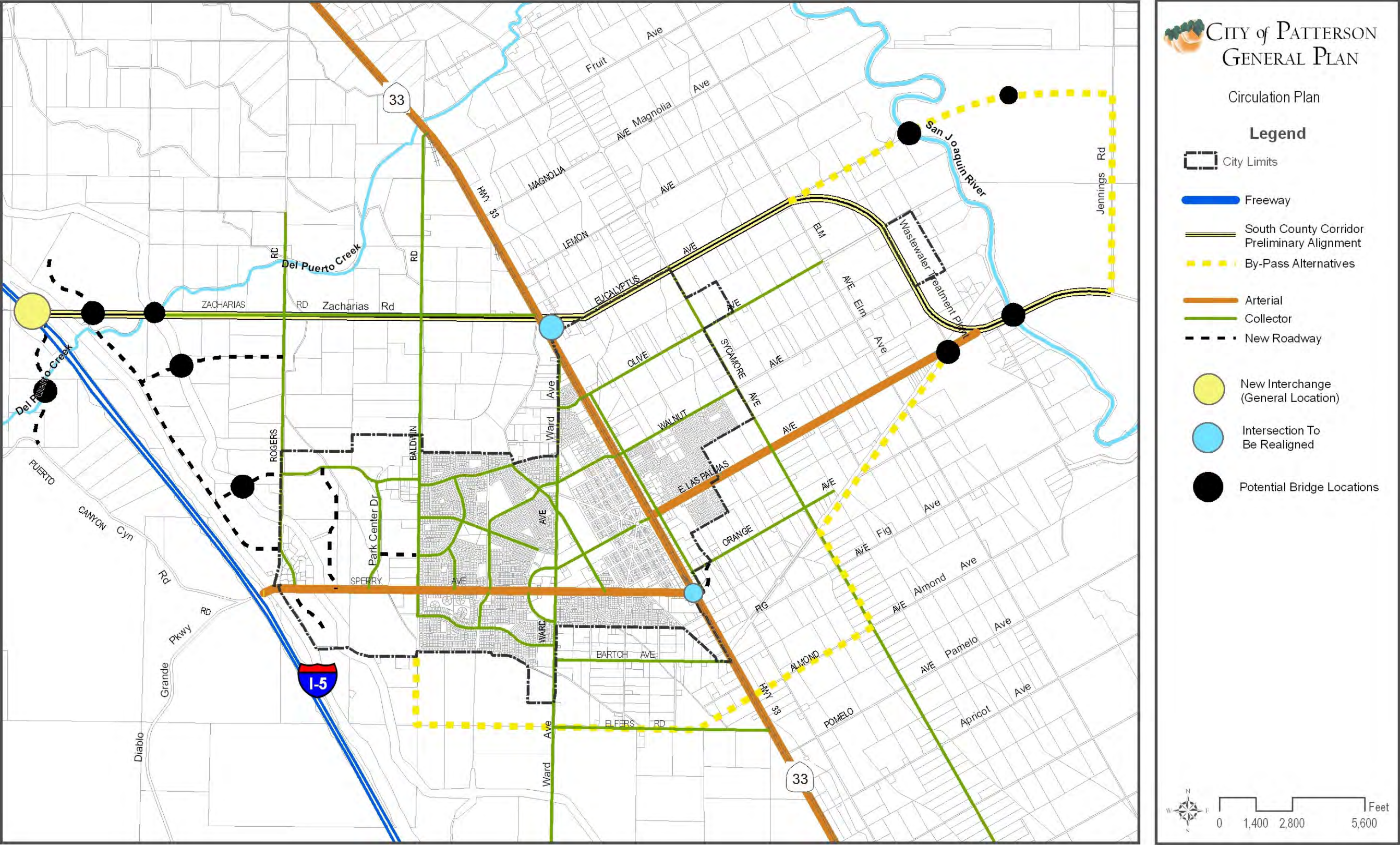
Draft Policy Document Response

The Circulation Diagram (Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives. The recommended lane configurations are provided on Figure 5.6-13. In addition, the Draft Policy Document recommends the following policies and programs to directly address the potential impacts related to traffic.

Policies

- T-1.1 Street design.** Street design and access standards shall provide for safe and efficient movement of goods and people. Restrictive traffic control measures (such as channelization, street closures, and prohibition of some traffic movements) shall be used where appropriate to promote traffic safety and efficient traffic operation.
- T-1.2 Level of service standard.** The City shall endeavor to maintain a minimum Level of Service “D”, as defined by the 2000 Highway Capacity Manual or subsequent revisions, on all streets and intersections within the city. To identify the potential impacts of new development on traffic service levels, the City shall require the preparation of traffic impact analyses at the sole expense of the developer for developments determined to be large enough to have potentially significant traffic impacts. This standard does not apply to freeways which are governed by the standards established by Caltrans.
- T-1.3 Hierarchy of streets.** The City shall implement a hierarchical street system in which each street serves a specific, primary function and is sensitive to the context of the land uses served. The hierarchy of streets shall be based on the existing backbone grid system of streets and the traditional circulation pattern established in the City’s downtown.
- T-1.4 City standards for streets.** Streets shall be dedicated, widened, extended, and constructed based on the roadway classifications/definitions and street sections provided in the City’s roadway improvement standards and Street Master Plan (see implementation measure T-2). Dedication and improvements of full rights-of-way shall not be required in existing developed areas where the City determines that such improvements are either infeasible or undesirable. Other deviations from these standards shall be permitted upon a determination by the City Engineer that safe and adequate public access and circulation are preserved by such deviations.
- T-1.5 Neighborhood streets.** Neighborhood streets shall be designed, where feasible, to discourage unsafe traffic speeds.

Figure 5.6-14: Circulation Plan



- T-1.6 South County Corridor.** The City shall promote efforts of Stanislaus County, StanCOG and other stakeholders in the development of the South County Corridor to connect E. Las Palmas Avenue to Interstate 5. The final alignment should be decided through a cooperative effort among stakeholders, and informed by a comprehensive feasibility study that assesses at least the following:
- The appropriate right-of-way width and location;
 - Environmental and regulatory constraints, especially as they relate to agricultural and biological resources;
 - The need for, and economic/environmental feasibility of, constructing a second bridge over the San Joaquin River;
 - An estimate of relevant costs; and
 - An analysis of alternatives;
- T-1.7 Sperry Avenue Corridor.** The City shall establish a roadway connection between Sperry Avenue and East Las Palmas to divert east-west through traffic from the downtown area.
- T-1.8 Streets outside the downtown.** The primary purpose of streets outside the downtown shall be the movement of vehicles and goods; parking shall be a secondary and subordinate use only. If travel demands dictate, on-street parking may be removed to increase traffic-carrying capabilities.
- T-1.10 Funding of traffic improvements.** The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.
- T-1.13 New interchange.** The City shall investigate the construction of a new interchange at Interstate 5 north of Sperry Avenue in the vicinity of Zacharias Road.
- T-1.14 Protection of Neighborhoods.** The City shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.
- T-2.1 Dial-a-ride.** The City shall work to assure that West Side Dial-a-Ride service is responsive to local needs.
- T-2.2 Bus transportation.** The City shall work with the County to maintain a van/minibus transportation system tailored to the needs of the elderly and disabled, which can be expanded in the future.
- T-2.3 Taxi service.** The City shall encourage the establishment of private taxi service in Patterson.
- T-3.1 Ridesharing.** The City shall encourage and support programs which will increase ridesharing.

- T-3.2 Park and ride lots.** The City shall cooperate with Caltrans in the development of park-and-ride facilities near Interstate 5.
- T-3.3 Rideshare coordination.** The City shall organize a voluntary ride-share coordination system for commuters.
- T-3.4 Fleet maintenance.** The City shall practice routine maintenance of all government vehicles, including the proper inflation of tires.
- T-5.1 Regional coordination.** The City shall continue to participate in state, regional, and local transportation planning efforts to ensure coordination of the expansion and improvement of the region's transportation system.
- T-5.2 Communication among agencies.** The City shall continue to develop formal and informal lines of communication among adjacent jurisdictions to ensure cooperation in the development of transportation systems that cross jurisdictional boundaries.
- T-7.1 Safe pedestrian and bike pathways.** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its share of the costs for development of this pathway system.
- T-7.2 Pedestrian access.** All new development shall be reviewed to ensure safe pedestrian access is provided from the street, within parking areas and between new development and surrounding neighborhoods.
- T-7.3 Bike routes.** The City shall establish a safe and convenient network of identified bicycle routes connecting new residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.
- T-7.4 Separation of bike routes from motor vehicles.** Bicycle routes shall emphasize paths separated from vehicle traffic (Class I) to the maximum extent possible, but shall also include bicycle lanes within public streets (Class II and III). The City shall limit on-street bicycle routes to those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.
- T-7.5 Include pathways in open space.** To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.
- T-7.6 Bike storage.** The City shall require the inclusion of bicycle parking facilities at all new major public facilities and commercial and employment sites and shall encourage large employers to provide showers for employees.

- T-7.7 Bicycle-automobile conflicts.** The City shall promote the safe “sharing” of roads between automobiles and bicyclists.
- T-7.8 Bike safety.** Bicycle safety shall be considered when implementing improvements for automobile traffic operations.
- T-7.9 Coordination with schools.** The City shall collaborate with the School District to promote bike use and shall actively pursue Safe Route to School grants to fund programs that facilitate safe bike routes.
- T-7.10 Coordination with other agencies.** The City shall coordinate with Stanislaus County, the Stanislaus Council of Governments, Caltrans and other agencies to improve bicycle and pedestrian circulation region-wide.
- T-7.11 Commuter rail service.** The City shall promote the establishment of commuter rail service between Patterson and the San Francisco Bay area and Sacramento.
- AQ-1.10 Transportation projects.** The City shall ensure that all transportation improvement projects submitted for inclusion in regional transportation plans (RTP, RTIP, CMP, etc.) shall be consistent with the air quality goals and policies of the General Plan.
- AQ-1.11 Consultation with transit providers.** The City shall consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.
- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.
- AR-2.1 Trip reduction programs.** The City shall promote the implementation of innovative employer-based trip reduction programs for employees.
- AR-2.2 City fleet vehicles.** The City shall consider replacing or converting conventional fuel vehicles to clean fuel vehicles as rapidly as feasible.
- AR-2.3 Teleconferencing.** The City shall support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.
- AR-2.4 Teleconferencing centers.** The City shall work to establish public/private partnerships to develop satellite and neighborhood work centers for telecommuting.
- AR-2.5 Commute reduction.** The City shall promote the expansion of employment opportunities in Patterson to reduce the volume and distance of home-to-work commute trips by motor vehicle.

- AR-3.1 Priority to existing roadways.** The City shall consider measures to increase the capacity of the existing road network prior to constructing more capacity (additional lanes, new freeways, etc.).
- AR-3.2 Promote alternate modes of travel.** The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.
- AR-3.3 Park and Ride.** The City shall plan park and ride lots at suitable locations serving long distance and local commuters.
- AR-3.4 Intersection design.** Major intersections shall be designed to minimize situations (such as long vehicle delays) which can adversely affect localized air quality.
- NR-4.3 Patterns of Development.** The City shall promote patterns of development that provide a complimentary range of land uses to serve the daily needs of nearby residents and minimize dependence on the automobile.

Implementation Measures

- T-2** The City shall maintain a Street Master Plan showing the existing and proposed ultimate rights-of-way and street width for each road segment within the city. The Street Master Plan shall be based on the adopted Circulation Diagram and indicate the necessary rights-of-way to be acquired or dedicated. The Street Master Plan shall be regularly updated.
- T-3** The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4** The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-5** The City shall operate the traffic signal system to maximize traffic flow. The timing of traffic signals shall be updated at least once every four years. (See Implementation Measure NR-7.)
- T-6** The City shall continue to investigate new technologies to help ensure the transportation system operates at the highest efficiency for the lowest cost.
- T-7** The City shall prepare roadway design standards for new and existing streets, roads and roundabouts. Such standards should include right-of-way width, roadway section design, and dedication requirements for new development to accommodate traffic levels expected at buildout of the General Plan. The roadway design standards should be interpreted with flexibility so that the roadways provided are no wider than required to maintain safe and efficient circulation and access.
- T-11** The City shall work with Caltrans to prepare a Project Study Report (PSR) for a new interchange north of the City in the vicinity of Zacharias Road and Interstate 5.

- T-12 The City shall participate in efforts to establish a South County Corridor to connect East Las Palmas Avenue with Interstate 5.
- T-13 The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.
- T-14 The City shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.

The policies and implementation programs listed above apply to each Equal-Weight alternative and shall help minimize impacts relating to traffic by:

- Promoting development that incorporates a complementary range of land uses within walking and biking distance;
- Funding the roadway improvements necessary to achieve and maintain the desired level of service;
- Promoting alternate modes of transportation.

Additional Mitigation

The following specific roadway improvements/mitigation measures are recommended for the Compact Development 2030 growth boundary.

- 5.6-1. Intersection No. 1 - Sperry Ave/I-5 SB Off Ramps. Signalize intersection. Southbound: add left turn lane. Westbound: add two left turn lanes.
- Funding: Not completely funded in 2010. Partial funding in 2007 Regional Transportation Plan Tier I; partially funded by City traffic impact fees.
- 5.6-2. Intersection No. 2 - Sperry Ave/I-5 NB On-Ramps. Signalize intersection. Eastbound: add left turn and through lane. Westbound: add a right turn lane. Northbound: add right turn lane.
- Funding: Not completely funded in 2010. Partial funding in 2007 Regional Transportation Plan Tier I; partially funded by City traffic impact fees.
- 5.6-3. Intersection No. 7 - Sperry Ave/Las Palmas Ave. Signalize intersection.
- Funding: Not completely funded in 2010. Included in City traffic impact fees.
- 5.6-4. Intersection No. 8 - Sperry Ave/Ward Ave. Eastbound: add one left turn lane. Northbound: add a left turn lane. Southbound: add a right turn lane.
- Funding: Not completely funded in 2010. Included in City traffic impact fees.
- 5.6-5. Intersection No. 9 - Sperry Avenue/S. Del Puerto Avenue. Add eastbound and westbound left turn lanes.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-6 Intersection No. 10 - Sperry Ave/SR 33 Signalize intersection. Eastbound: add left turn and right turn lanes. Westbound: add a left turn lane. Northbound: add two left turn lanes. Southbound: add a left turn lane; restripe the shared through and left turn lane as a shared through and right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-7 Intersection No. 13 - Ward Ave/SR 33. Signalize intersection. Add a northbound left turn lane. Add one through lane to the northbound and southbound.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-8 Intersection No. 14 - Zacharias Rd/SR 33. It is assumed that this intersection will be realigned as a part of the proposed South County Corridor project. Signalize intersection. Northbound: add two left turn lanes. Eastbound: add a left turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-9 Intersection No. 15 - Baldwin Rd/SR 33. Signalize intersection and add left-turn lane in the northbound. And add a southbound right-turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-10 Intersection No. 16 - Rogers Rd/SR 33. Signalize intersection. Add eastbound and northbound left turn lanes. Southbound: add a right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-11 Intersection No. 17 - SR 33/Eucalyptus Ave. Southbound: add a left turn and through lane. Northbound: add a through lane

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-12 Intersection No. 19 - Walnut Ave/M Street/SR 33 Signalize intersection. Eastbound, Westbound: add a left turn lane and restripe shared through and left turn lane as a shared through and right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-13 Intersection No. 20 - E. Las Palmas Ave/Sycamore Ave Signalize intersection. Add left-turn lane to southbound and northbound approaches.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

With the above recommended improvements impacts to traffic associated with development accommodated by the 20-year growth boundary of the Compact Development Alternative would be less than significant. However, as discussed above, although the City has adopted a development impact fee ordinance and has included the partial cost of these improvements in currently-collected fees on new development, none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, these impacts are considered **significant and unavoidable**.

Compact Development Traffic in the 40 year buildout Growth Boundary

Impact 5.6-2 Development accommodated within the 20 to 40 growth limit of the Compact Development alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2050 which could reduce the level of service on roadways and intersections serving the Study Area. This impact is considered potentially significant.

Year 2050 trips generation associated with the 20 to 40 year growth limits of the Compact Development Alternative is shown in Table 5.6-12.

Table 5.6-12: 2050 Trip Generation – Compact Development Alternative

Land Use/ ITE Code	Size/ Units	AM Peak Hour					PM Peak Hour				
		Rate	% In/Out	Trips In	Trips Out	Total	Rate	% In/Out	Trips In	Trips Out	Total
Single Family (210)	1,920	0.75	25:75	360	1,080	1,440	1.01	63:37	1,222	717	1,939
Multi Family (230)	1,920	0.44	17:83	144	701	845	0.52	67:33	669	329	998
Retail (820)	1,505	1	61:39	918	587	1,505	3.73	49:51	2,751	2,863	5,615
Service/Office (710)	545	1.55	88:12	743	101	844	1.49	17:83	138	673	811
Industrial (130)	1,978	0.84	82:18	1,362	299	1,661	0.86	21:79	357	1,344	1,701
Total (du)	3,840										
Total (ksf)	4,027			3,527	2,768	6,295			5,137	5,927	11,064

Source: TJKM, 2010

Notes:

1. du = dwelling unit ksf = thousand square feet

Estimated Level of Service

The estimated 2050 level of service for roadways serving the Compact Development Alternative are provided in Table 5.6-13.

Table 5.6-13: 2050 Road Segment Levels of Service – Compact Development Alternative					
No.	Roadway Segment	Dir. Lanes	P.M. Peak Hour		
			ADT (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	1	34,477	20.8	E
B	Sperry Ave. e/o Rogers Rd.	2	37,338	27.6	C
C	Baldwin Rd., n/o Sperry Ave.	1	9,571	22.3	C
D	Sperry Ave. e/o Ward Ave.	2	10,333	27.9	C
E	Ward Ave., n/o Las Palmas Ave.	1	12,192	20.5	C
F	Zacharias Rd, w/o SR 33	1	36,831	23.5	D
G	SR-33, n/o Zacharias Rd.	1	17,310	22.8	D
H	SR-33, s/o Walnut Ave.	1	17,206	21.5	D
I	Ward Ave., n/o Marshall Rd.	1	20,980	22.5	C
J	SR-33, s/o Sperry Ave.	1	18,843	26.5	D
N	E Las Palmas Ave., w/o Sycamore Ave.	1	20,889	17.8	D
O	Main St., e/o of Carpenter Rd.	1	20,709	24.4	C
Source: TJKM, 2010 and Highway Capacity 2000- Urban Streets Analysis					

Draft Policy Document Response

Potential traffic impacts associated with urban development between 2030 and 2050 accommodated by the Compact Development Alternative will be partially mitigated by the following:

- Improvements recommended by the Circulation Plan;
- Improvements recommended by the Regional Transportation Plan;
- Policies and implementation measures recommended by the Draft Policy Document;
- Additional mitigation recommended for 2030 for the Compact Development Alternative under impact 5.6-1.

Additional Mitigation

The following additional mitigation measures are recommended.

Recommended Implementation Measures

- T-18 The City shall continue to monitor traffic levels on roadways and intersections serving the City and to require the installation of roadway and intersection improvements necessary to maintain the desired level of service.
- T-19 The City shall refine the analysis of future traffic conditions during the 2030 to 2050 timeframes as the traffic model used by the Stanislaus Council of Governments is updated to include the 2050 timeframe.
- T-20 Based on traffic monitoring, consider implementing the following roadway improvements as needed to maintain an acceptable level of service on street segments and intersections:
- a. Widening Rogers Road north of Sperry Avenue to four lanes.
 - b. Widen Zacharias Road and Eucalyptus Avenue to four lanes, or complete the South County Corridor.
 - c. Widen the West Main Street bridge over the San Joaquin River to six lanes or provide a separate bridge/roadway.
 - d. Signalize the intersection of State Route 33 and Baldwin Road.
 - e. Signalize the intersection of State Route 33 and Olive Avenue.
 - f. Widen State Route 33 to four lanes from Sperry Avenue to Rogers Road.

Recommended mitigation measures a., b., and f. of implementation measure T-20 are included in the 2007 Regional Transportation Plan as a Tier II project (with estimated costs but no funding). Measure 4. is included in the City's current development impact fee program, and mitigation 5. currently has no funding. Although the measures described above, in conjunction with the policies and implementation measures recommended for the 2030 growth timeframe, will help mitigate potential traffic impacts for the 2030 to 2050 timeframe, the precise nature of the growth in background traffic associated with development in the region between 2030 and 2050 is unknown. In addition, roadway and intersection improvements to roadways outside the City's jurisdiction may be required and cannot be guaranteed. For these reasons, traffic impacts associated with the Compact Development Alternative for the years 2030 to 2050 are **significant and unavoidable**.

Jobs Emphasis Alternative Traffic in the 20-Year Growth Boundary

Impact 5.6-3 Development accommodated by the Jobs Emphasis alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2030 which could reduce the level of service on roadways and intersections serving the Study Area. This impact is considered potentially significant.

The Jobs Emphasis Alternative would accommodate approximately 9,704 new dwelling units and 19.8 million square feet of additional non-residential floor space. This alternative emphasizes job-creation with the designation of additional land for industrial development in the first twenty years extending west of Rogers Road north of the Patterson Business Park and between the canals.

Trip Generation

The trip generation estimates for the proposed alternative are summarized in Table 5.6-14.

Table 5.6-14: 2030 Trip Generation Associated With the Jobs Emphasis Alternative											
Land Use / (ITE Code)	Size / Units	A.M. Peak					P.M. Peak				
		Rate	In:Out %	In	Out	Total	Rate	In:Out %	In	Out	Total
Single Family (210)	4,681 du	0.75	25:75	878	2,633	3,511	1.01	63:37	2,979	1,749	4,728
Multi Family (230)	5,023 du	0.44	17:83	376	1,834	2,210	0.52	67:33	1,750	862	2,612
Retail (820)	7,550 ksf	1.00	61:39	4,606	2,945	7,550	3.73	49:51	13,799	14,362	28,162
Service/Office (710)	2,178 ksf	1.55	88:12	2,971	405	3,376	1.49	17:83	552	2,694	3,245
Industrial (130)	12,220 ksf	0.84	82:18	8,417	1,848	10,265	0.86	21:79	2,207	8,302	10,509
Total (du)	9,704										
Total (ksf)	21,948			17,247	9,665	26,911			21,286	27,969	49,255
Source: TJKM, 2010											
Notes:											
1. du = dwelling unit ksf = thousand square feet											

Level of Service Analysis

The projected 2030 Cumulative plus Jobs Alternative peak hour turning movement volumes are shown in Figure 5.6-15. Tables 5.6-15 and 5.6-16 summarize the intersection and link level of service conditions respectively for this scenario. Levels of service analysis results indicated that 18 of the 23 study intersections will operate at LOS E/F. The detailed calculation sheets are contained in Appendix 5.6.

Table 5.6-15: 2030 Intersection Levels of Service –
Jobs Emphasis Alternative

Intersection	Without Mitigation					With Mitigation				
	Existing Control	A.M.		P.M.		Mitigated Control	A.M.		P.M.	
		Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	One-Way Stop	120.0	F	120.0	F	Signal	32.4	C	40.3	D
2. Sperry Ave/I-5 NB On-Ramps	One-Way Stop	120.0	F	120.0	F	Signal	9.9	A	14.2	B
3. Sperry Ave/Rogers Road	Signal	120.0	F	120.0	F	Signal	35.2	D	37.1	D
4. Sperry Ave/Baldwin Rd	Signal	120.0	F	120.0	F	Signal	23.7	C	26.8	C
5. Sperry Avenue/Walker Parkway	Signal	43.2	D	45.9	66.6	Signal	11.1	B	17.5	B
6. Sperry Ave/American Eagle Dr	Signal	120.0	F	120.0	F	Signal	45.4	D	44.3	D
7. Sperry Ave/Las Palmas Ave	Two-Way Stop	72.3	F	120.0	F	Signal	11.9	B	8.2	A
8. Sperry Ave/Ward Ave	Signal	120.0	F	120.0	F	Signal	35.3	D	40.8	D
9. Sperry Ave/S Del Puerto Ave	Signal	8.3	A	27.8	C	Signal	5.0	A	6.8	A
10. Sperry Ave/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	25.4	C	32.8	C
11. SR-33/Las Palmas Ave	Signal	82.8	F	34.8	C	Signal	33.1	C	47.6	D
12. Ward Ave/ American Eagle Dr	Signal	120.0	F	120.0	F	Signal	35.8	D	48.6	D
13. Ward Ave/SR-33	One-Way Stop	1.0	A	0.6	A	Signal	4.5	A	4.4	A
14. Zacharias Rd/SR-33	One-Way Stop	120.0	F	120.0	F	Signal	33.0	C	35.6	D
15. Baldwin Rd/SR-33	One-Way Stop	8.9	A	5.5	A	Signal	9.7	A	8.1	A
16. Rogers Rd/SR-33	One-Way Stop	7.3	A	3.2	A	Signal	5.9	A	6.2	A
17. SR-33/Eucalyptus	One-Way Stop	120.0	F	120.0	F	Signal	7.9	A	7.0	A
18. Olive Avenue/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	21.8	C	19.4	B
19. Walnut Avebue/M Street/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	25.5	C	15.6	B
20. Las Palmas Ave./Sycamore Ave	All-Way Stop	120.0	F	120.0	F	Signal	51.1	D	46.2	D
21. Poplar Ave/Las Palmas Ave	One-Way Stop	26.0	D	120.0	F	Signal	4.9	A	9.2	A
22. Carpenter Rd/W Main Ave	All-Way Stop	120.0	F	120.0	F	Signal	8.7	A	21.3	C
23. Crows Landing Rd/W Main Ave	All-Way Stop	120.0	F	120.0	F	Signal	6.8	A	7.4	A

Source: TJKM, 2010

Notes: LOS = Level of Service
X = Intersection level of service
X.X = Overall intersection delay in seconds per vehicle for signalized intersections
X.X = Delay for minor movement at Unsignalized intersections
Signal = Mitigated

**Table 5.6-16: Segment Levels of Service –
2030 Cumulative plus Jobs Emphasis Alternative**

No.	Roadway Segment	Direction	Dir. Lanes	A.M. Peak Hour			P.M. Peak Hour		
				Volume (Veh.)	Speed (mph)	LOS	Volume (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	EB	1	156			796		
		WB	1	976	26.8	D	925	26.4	D
B	Sperry Ave. e/o Rogers Rd.	EB	2	469			1807		
		WB	2	1701	27.7	C	1870	27.7	C
C	Baldwin Rd., n/o Sperry Ave.	NB	1	302			463	23.2	C
		SB	1	425	23.0	C	448		
D	Sperry Ave. e/o Ward Ave.	EB	2	223			531		
		WB	2	660	29.1	B	677	29.1	B
E	Ward Ave., n/o Las Palmas Ave.	NB	1	154			577	24.0	B
		SB	1	488	24.1	B	331		
F	Zacharias Rd, w/o SR 33	EB	1	520			815		
		WB	1	858	31.8	B	846	31.8	B
G	SR-33, n/o Zacharias Rd.	NB	1	537			496	25.9	D
		SB	1	564	27.2	C	295		
H	SR-33, s/o Walnut Ave.	NB	1	425			830	27.3	C
		SB	1	791	26.9	D	590		
I	Ward Ave., n/o Marshall Rd.	NB	1	269			1562	28.7	B
		SB	1	1494	28.5	B	754		
J	SR-33, s/o Sperry Ave.	NB	1	530			1164	26.4	D
		SB	1	1230	26.3	D	707		
N	E Las Palmas Ave., w/o Sycamore Ave.	EB	1	428			965		
		WB	1	1049	29.1	B	1057	29.3	B
O	Main St., e/o of Carpenter Rd.	EB	1	421			1579	31.5	B
		WB	1	1852	31.8	B	945		
Source: TJKM< 2010 and Highway Capacity 2000- Urban Streets Analysis									

Figure 5.6-15: Cumulative Plus Jobs Emphasis Alternative Year 2030 Peak Hour Turning Movements

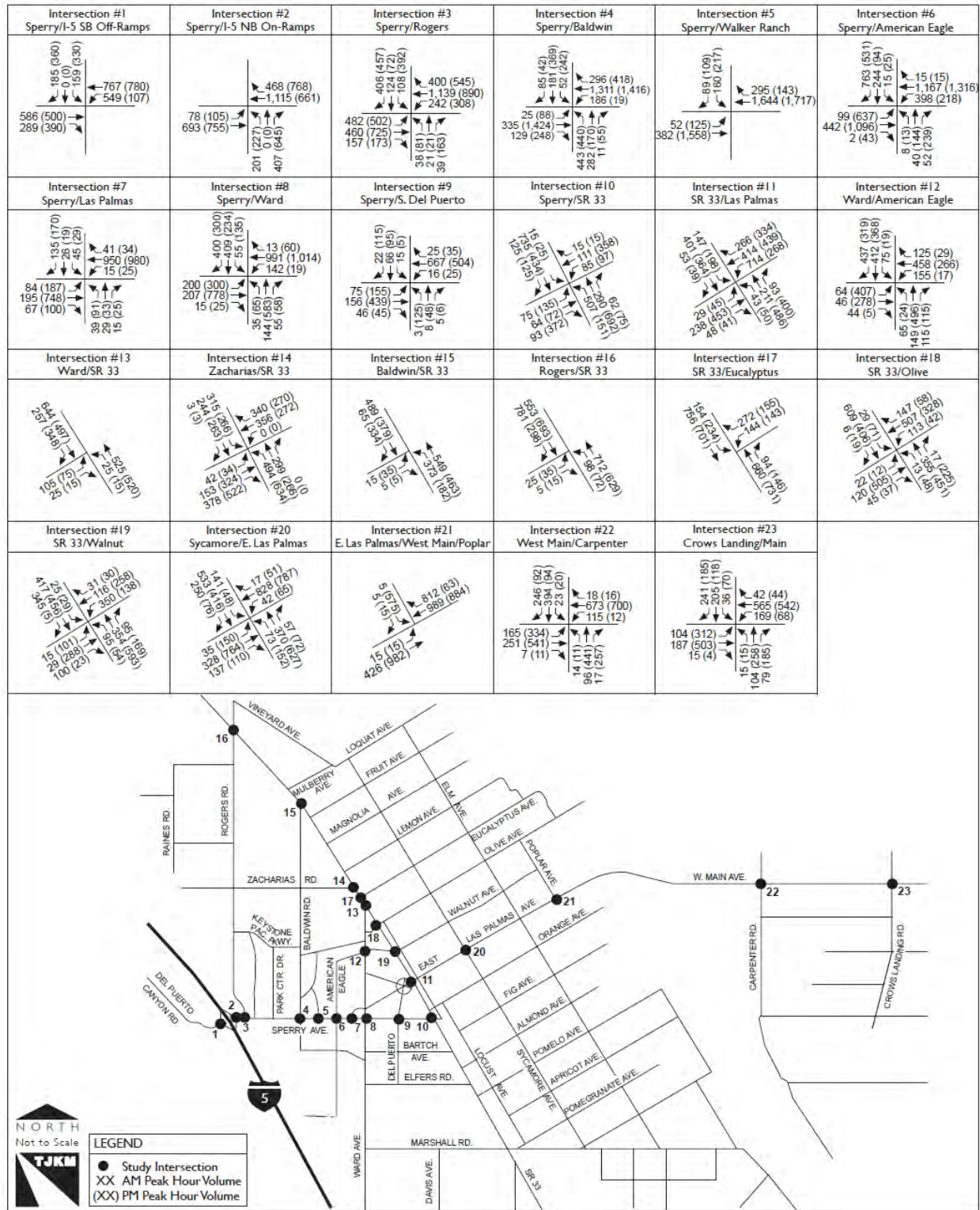
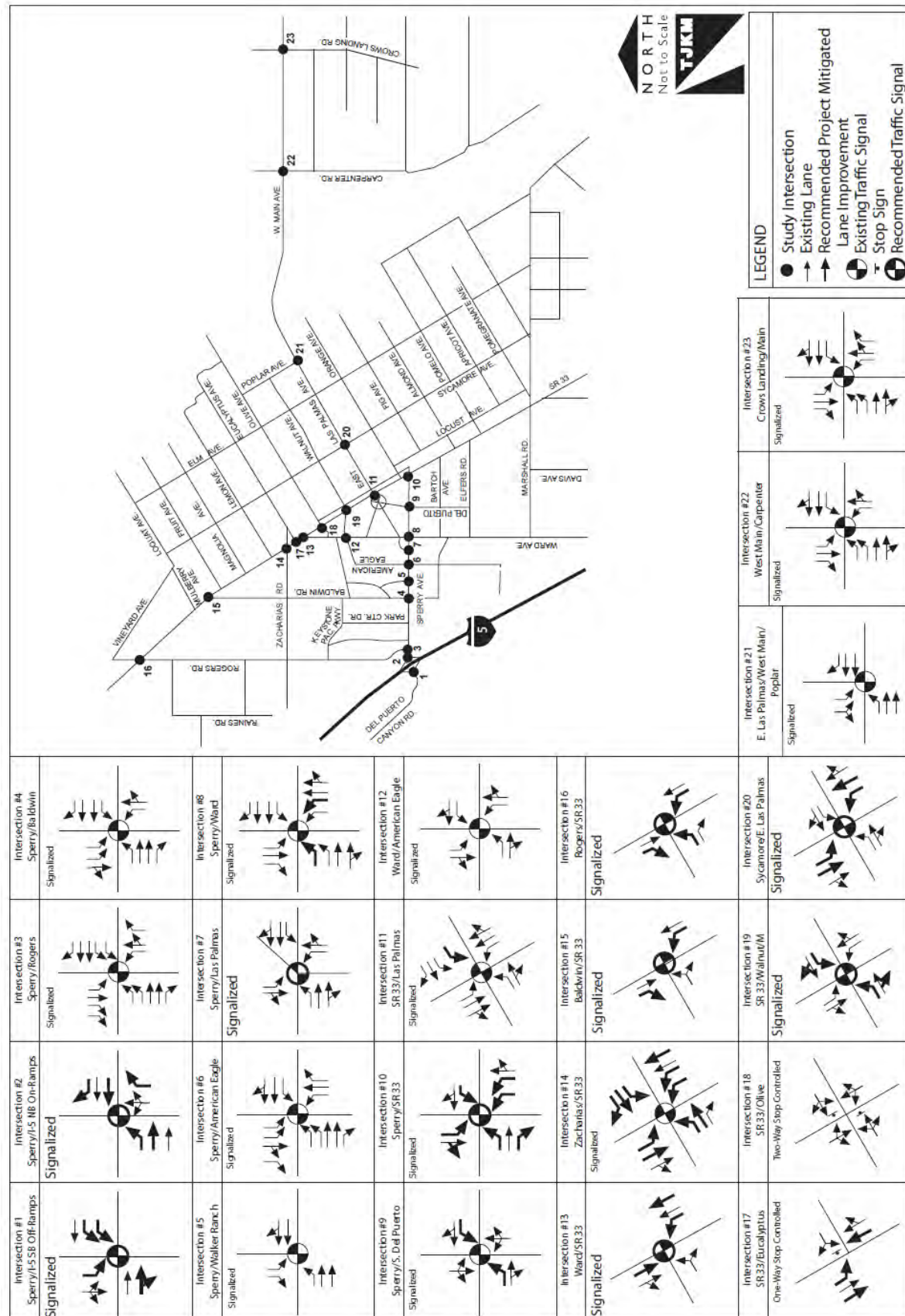


Figure 5.6-16: 2030 Cumulative Plus Jobs Emphasis Lane Configurations



Draft Policy Document Response

The Circulation Diagram (Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives. The recommended lane configurations are provided on Figure 5.6-16. In addition, policies and implementation measures recommended for the Compact Development Alternative listed under impact 5.6-1, above, will also apply to the Jobs Emphasis Alternative.

Additional Mitigation

The following specific roadway improvements/mitigation measures are recommended for the Jobs Emphasis 2030 timeframe.

- 5.6-1. Intersection No. 1 - Sperry Ave/I-5 SB Off Ramps. Signalize intersection. Southbound: add left turn lane. Westbound: add two left turn lanes.

Funding: Not completely funded in 2010. Partial funding in 2007 Regional Transportation Plan Tier I; partially funded by City traffic impact fees.

- 5.6-2. Intersection No. 2 - Sperry Ave/I-5 NB On-Ramps. Signalize intersection. Eastbound: add left turn and through lane. Westbound: add a right turn lane. Northbound: add right turn lane.

Funding: Not completely funded in 2010. Partial funding in 2007 Regional Transportation Plan Tier I; partially funded by City traffic impact fees.

- 5.6-3. Intersection No. 7 - Sperry Ave/Las Palmas Ave. Signalize intersection.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-4. Intersection No. 8 - Sperry Ave/Ward Ave. Eastbound: add one left turn lane. Northbound: add a left turn lane. Southbound: add a right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-5. Intersection No. 9 - Sperry Avenue/S. Del Puerto Avenue. Add eastbound and westbound left turn lanes.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-6. Intersection No. 10 - Sperry Ave/SR 33 Signalize intersection. Eastbound: add left turn and right turn lanes. Westbound: add a left turn lane. Northbound: add two left turn lanes. Southbound: add a left turn lane; restripe the shared through and left turn lane as a shared through and right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-7. Intersection No. 13 - Ward Ave/SR 33. Signalize intersection. Add a northbound left turn lane. Add one through lane to the northbound and southbound.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-8 Intersection No. 14 - Zacharias Rd/SR 33. It is assumed that this intersection will be realigned as a part of the proposed South County Corridor project. Signalize intersection. Northbound: add two left turn lanes. Eastbound: add a left turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-9 Intersection No. 15 - Baldwin Rd/SR 33. Signalize intersection and add left-turn lane in the northbound. And add a southbound right-turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-10 Intersection No. 16 - Rogers Rd/SR 33. Signalize intersection. Add eastbound and northbound left turn lanes. Southbound: add a right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-11 Intersection No. 17 - SR 33/Eucalyptus Ave. Southbound: add a left turn and through lane. Northbound: add a through lane

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-12 Intersection No. 19 - Walnut Ave/M Street/SR 33 Signalize intersection. Eastbound, Westbound: add a left turn lane and restripe shared through and left turn lane as a shared through and right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-13 Intersection No. 20 - E. Las Palmas Ave/Sycamore Ave Signalize intersection. Add left-turn lane to southbound and northbound approaches.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-15 Intersection No. 11 - East Las Palmas Ave/SR 33. Add additional westbound left turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

With the above recommended improvements impacts to traffic associated with development accommodated by the 20-year growth boundary of the Jobs Emphasis Alternative would be less than significant. However, as discussed above, although the City has adopted a development impact fee ordinance and has included the partial cost of these improvements in currently-collected fees on new development, none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, these impacts are considered **significant and unavoidable**.

Jobs Emphasis Alternative Traffic in the 40 year buildout Growth Boundary

Impact 5.6-4 Development accommodated within the 20 to 40 growth limit of the Jobs Emphasis Alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2050 which could reduce the level of service on roadways and intersections serving the Study Area. This impact is considered potentially significant.

Year 2050 trips generation associated with the 20 to 40 year growth limits of the Jobs Emphasis Alternative is shown in Table 5.6-17.

Table 5.6-17: 2050 Trip Generation – Compact Development Alternative

Land Use/ ITE Code	Size/ Units	AM Peak Hour					PM Peak Hour				
		Rate	% In:Out	Trips In	Trips Out	Total	Rate	% In:Out	Trips In	Trips Out	Total
Single Family (210)	3,155	0.75	25:75	592	1,775	2,366	1.01	63:37	2,008	1,179	3,187
Multi Family (230)	3,284	0.44	17:83	246	1,199	1,445	0.52	67:33	1,144	564	1,708
Retail (820)	2,289	1	61:39	1,396	893	2,289	3.73	49:51	4,184	4,355	8,539
Service/Office (710)	545	1.55	88:12	743	101	845	1.49	17:83	138	674	812
Industrial (130)	0	0.84	82:18	0	0	0	0.86	21:79	0	0	0
Total (du)	6,439										
Total (ksf)	2,834			2,977	3,968	6,945			7,474	6,771	14,245

Source: TJKM, 2010

Notes:

1. du = dwelling unit ksf = thousand square feet

Estimated Level of Service

The estimated level of service for roadways serving the Jobs Emphasis Alternative for 2050 are provided in Table 5.6-18.

Table 5.6-18: 2050 Road Segment Levels of Service – Jobs Emphasis Alternative					
No.	Roadway Segment	Dir. Lanes	P.M. Peak Hour		
			ADT (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	1	38,724	20.0	E
B	Sperry Ave. e/o Rogers Rd.	2	36,934	27.6	C
C	Baldwin Rd., n/o Sperry Ave.	1	12,843	22.0	C
D	Sperry Ave. e/o Ward Ave.	2	17,202	27.6	C
E	Ward Ave., n/o Las Palmas Ave.	1	11,747	20.6	C
F	Zacharias Rd, w/o SR 33	1	37,595	23.4	D
G	SR-33, n/o Zacharias Rd.	1	17,918	22.8	D
H	SR-33, s/o Walnut Ave.	1	22,777	21.2	D
I	Ward Ave., n/o Marshall Rd.	1	21,569	22.4	C
J	SR-33, s/o Sperry Ave.	1	19,422	26.3	D
N	E Las Palmas Ave., w/o Sycamore Ave.	1	25,737	21.4	D
O	Main St., e/o of Carpenter Rd.	1	20,642	24.4	C
Source: TJKM, 2010 and Highway Capacity 2000- Urban Streets Analysis					

Draft Policy Document Response

Potential traffic impacts associated with urban development between 2030 and 2050 accommodated by the Jobs Emphasis Alternative will be partially mitigated by the following:

- Improvements recommended by the Preliminary Circulation Plan;
- Improvements recommended by the Regional Transportation Plan;
- Policies and implementation measures recommended by the Draft Policy Document;
- Additional mitigation recommended for 2030 for the Jobs Emphasis Alternative under impact 5.6-3.

Additional Mitigation

The following additional mitigation measures are recommended.

Recommended Implementation Measures

- T-18 The City shall continue to monitor traffic levels on roadways and intersections serving the City and to require the installation of roadway and intersection improvements necessary to maintain the desired level of service.

- T-19 The City shall refine the analysis of future traffic conditions during the 2030 to 2050 timeframes as the traffic model used by the Stanislaus Council of Governments is updated to include the 2050 timeframe.

- T-18 The City shall continue to monitor traffic levels on roadways and intersections serving the City and to require the installation of roadway and intersection improvements necessary to maintain the desired level of service.

- T-19 The City shall refine the analysis of future traffic conditions during the 2030 to 2050 timeframes as the traffic model used by the Stanislaus Council of Governments is updated to include the 2050 timeframe.

- T-20 Based on traffic monitoring, consider implementing the following roadway improvements as needed to maintain an acceptable level of service on street segments and intersections:
 - a. Widening Rogers Road north of Sperry Avenue to four lanes.
 - b. Widen Zacharias Road and Eucalyptus Avenue to four lanes, or complete the South County Corridor.
 - c. Widen the West Main Street bridge over the San Joaquin River to six lanes or provide a separate bridge/roadway.
 - d. Signalize the intersection of State Route 33 and Baldwin Road.
 - e. Signalize the intersection of State Route 33 and Olive Avenue.
 - f. Widen State Route 33 to four lanes from Sperry Avenue to Rogers Road.

Recommended mitigation measures a., b., and f. of implementation measure T-20 are included in the 2007 Regional Transportation Plan as a Tier II project (with estimated costs but no funding). Measure 4. is included in the City's current development impact fee program, and mitigation 5. currently has no funding. Although the measures described above, in conjunction with the policies and implementation measures recommended for the 2030 growth timeframe, will help mitigate potential traffic impacts for the 2030 to 2050 timeframe, the precise nature of the growth in background traffic associated with development in the region between 2030 and 2050 is unknown. In addition, roadway and intersection improvements to roadways outside the City's jurisdiction may be required and cannot be guaranteed. For these reasons, traffic impacts associated with the Jobs Emphasis Alternative for the years 2030 to 2050 are **significant and unavoidable**.

Planning Commission Environmental Review Alternative Traffic in the 20-Year Timeframe

Impact 5.6-5 Development accommodated by the Planning Commission Environmental Review alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2030 which could reduce the level of service on roadways and intersections serving the Study Area. This impact is considered potentially significant.

This scenario evaluates the traffic impact from the development of the proposed Planning Commission Environmental Review alternative project. This alternative includes approximately 15,680 new dwelling units and 18.7 million square feet of additional non-residential floor space.

Trip Generation

The trip generation estimates for the proposed alternative are summarized in Table 5.6-19.

Table 5.6-19: 2030 Trip Generation Associated With the Planning Commission Environmental Review Alternative											
Land Use / (ITE Code)	Size / Units	A.M. Peak					P.M. Peak				
		Rate	In:Out %	In	Out	Total	Rate	In:Out %	In	Out	Total
Single Family (210)	7,919 du	0.75	25:75	1,485	4,454	5,939	1.01	63:37	5,039	2,959	7,998
Multi Family (230)	7,761 du	0.44	17:83	581	2,834	3,415	0.52	67:33	2,704	1,332	4,036
Retail (820)	3,547 ksf	1.00	61:39	2,164	1,383	3,547	3.73	49:51	6,483	6,747	13,230
Service/Office (710)	2,178 ksf	1.55	88:12	2,971	405	3,376	1.49	17:83	552	2,694	3,245
Industrial (130)	15,088 ksf	0.84	82:18	10,393	2,281	12,674	0.86	21:79	2,725	10,251	12,976
Total (du)	15,680										
Total (ksf)	20,813			17,592	11,358	28,951			17,502	23,983	41,485
Source: TJKM, 2010											
Notes:											
1. du = dwelling unit ksf = thousand square feet											

Level of Service Analysis

The projected 2030 peak hour turning movement volumes are shown in Figure 5.6-17. Lane configurations are shown in Figure 5.6-18. Tables 5.6-20 and 5.6-21 summarize the intersection and link level of service conditions respectively for this scenario. Levels of service analysis results indicated that 18 of the 23 study intersections will operate at LOS E/F. The detailed calculation sheets are contained in Appendix 5.6.

**Table 5.6-20: 2030 Intersection Levels of Service –
Planning Commission Environmental Review Alternative**

Intersection	Without Mitigation						With Mitigation			
	Existing Control	A.M.		P.M.		Mitigated Control	A.M.		P.M.	
		Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	One-Way Stop	120.0	F	120.0	F	Signal	23.5	C	19.5	C
2. Sperry Ave/I-5 NB On-Ramps	One-Way Stop	120.0	F	120.0	F	Signal	11.5	B	34.4	D
3. Sperry Ave/Rogers Road	Signal	120.0	F	120.0	F	Signal	43.5	D	48.7	D
4. Sperry Ave/Baldwin Rd	Signal	120.0	F	120.0	F	Signal	36.6	D	52.6	D
5. Sperry Avenue/Walker Parkway	Signal	45.0	D	45.9	D	Signal	12.7	B	13.9	B
6. Sperry Ave/American Eagle Dr	Signal	16.3	B	120.0	F	Signal	31.0	C	43.9	D
7. Sperry Ave/Las Palmas Ave	Two-Way Stop	120.0	F	120.0	F	Signal	16.4	C	9.0	A
8. Sperry Ave/Ward Ave	Signal	120.0	F	120.0	F	Signal	50.1	D	34.3	C
9. Sperry Ave/S Del Puerto Ave	Signal	7.2	A	20.4	C	Signal	5.1	A	7.0	A
10. Sperry Ave/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	34.4	D	22.1	C
11. SR-33/Las Palmas Ave	Signal	78.1	E	31.6	C	Signal	36.3	D	41.1	D
12. Ward Ave/ American Eagle Dr	Signal	93.7	F	120.0	F	Signal	24.9	C	19.1	B
13. Ward Ave/SR-33	One-Way Stop	1.1	A	0.5	A	Signal	4.4	A	4.3	A
14. Zacharias Rd/SR-33	One-Way Stop	120.0	F	120.0	F	Signal	29.4	D	34.1	D
15. Baldwin Rd/SR-33	One-Way Stop	22.6	C	3.5	A	Signal	16.8	C	4.6	A
16. Rogers Rd/SR-33	One-Way Stop	1.3	A	1.8	A	Signal	5.8	A	6.2	A
17. SR-33/Eucalyptus	One-Way Stop	120.0	F	120.0	F	Signal	6.5	A	11.0	B
18. Olive Avenue/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	21.0	C	33.3	D
19. Walnut Avebue/M Street/SR-33	Two-Way Stop	120.0	F	120.0	F	Signal	16.4	C	16.9	C
20. Las Palmas Ave./Sycamore Ave	All-Way Stop	120.0	F	120.0	F	Signal	17.4	C	20.0	C
21. Poplar Ave/Las Palmas Ave	One-Way Stop	32.5	D	120.0	F	Signal	4.6	A	9.7	A
22. Carpenter Rd/W Main Ave	All-Way Stop	120.0	F	120.0	F	Signal	7.3	A	21.5	C
23. Crows Landing Rd/W Main Ave	All-Way Stop	120.0	F	120.0	F	Signal	7.6	A	7.3	A
Source: TJKM, 2010 Notes: LOS = Level of Service X = Intersection level of service X.X = Overall intersection delay in seconds per vehicle for signalized intersections X.X = Delay for minor movement at Unsignalized intersections Signal = Mitigated										

Table 5.6-21: 2030 Roadway Segment Levels of Service –
Planning Commission Environmental Review Alternative

No.	Roadway Segment	Direction	Dir. Lanes	A.M. Peak Hour			P.M. Peak Hour		
				Volume (Veh.)	Speed (mph)	LOS	Volume (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	EB	1	150			698	26.4	D
		WB	1	794	27.5	C	675		
B	Sperry Ave. e/o Rogers Rd.	EB	2	710			1819	27.7	C
		WB	2	1827	27.7	C	1794		
C	Baldwin Rd., n/o Sperry Ave.	NB	1	468	23.2	C	477		
		SB	1	356			553	23.3	C
D	Sperry Ave. e/o Ward Ave.	EB	2	158			572	29.2	B
		WB	2	579	29.2	B	386		
E	Ward Ave., n/o Las Palmas Ave.	NB	1	402			531	23.9	C
		SB	1	443	24.0	B	483		
F	Zacharias Rd, w/o SR 33	EB	1	482			881	31.8	B
		WB	1	849	31.8	B	808		
G	SR-33, n/o Zacharias Rd.	NB	1	768	27.7	C	469		
		SB	1	557			474	24.8	D
H	SR-33, s/o Walnut Ave.	NB	1	386			778	26.6	D
		SB	1	798	27.0	D	590		
I	Ward Ave., n/o Marshall Rd.	NB	1	384			1577	28.5	B
		SB	1	1782	28.6	B	792		
J	SR-33, s/o Sperry Ave.	NB	1	494			1130	26.5	D
		SB	1	1154	26.4	D	736		
N	E Las Palmas Ave., w/o Sycamore Ave.	EB	1	621			1037	29.3	B
		WB	1	1030	29.2	B	937		
O	Main St., e/o of Carpenter Rd.	EB	1	685			1709	31.8	B
		WB	1	1183	31.6	B	463		

Sources: TJKM, 2010 and Highway Capacity 2000- Urban Streets Analysis

Figure 5.6-17: 2030 Peak Hour Turning Movements -- Planning Commission Environmental Review Alternative

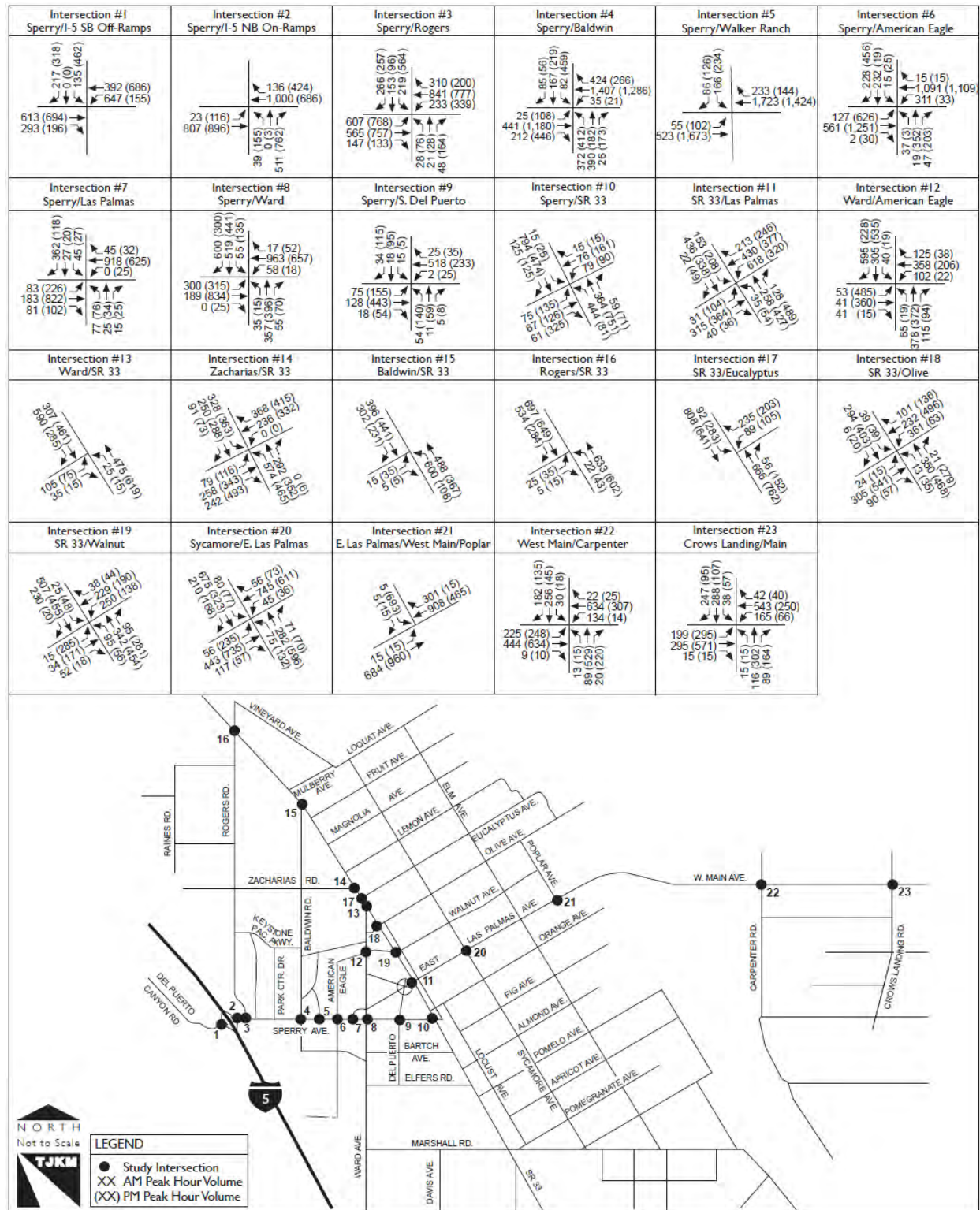
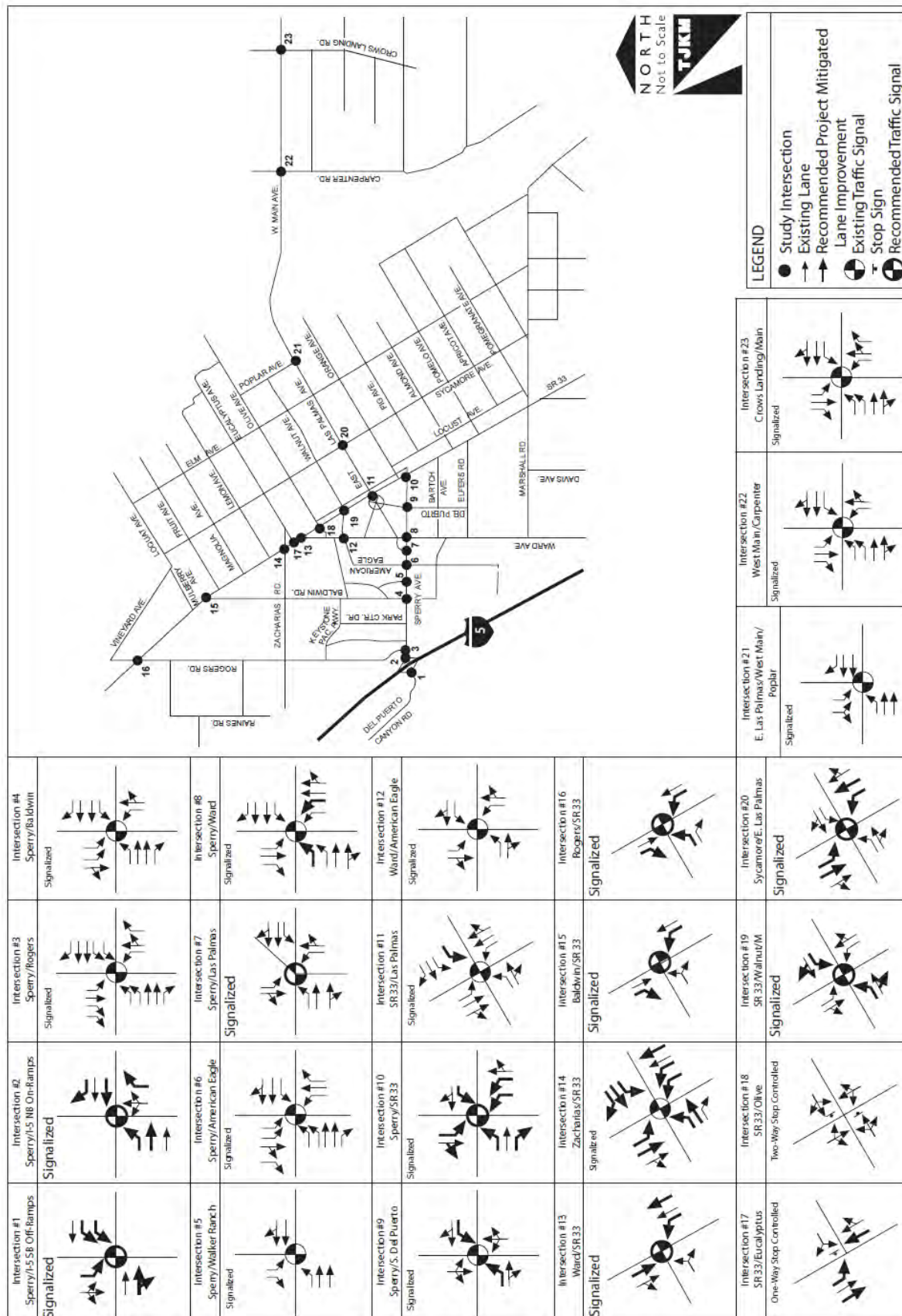


Figure 5.6-18: 2030 Lane Configurations -- PC Environmental Review Alternative



Draft Policy Document Response

The Circulation Diagram (Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives. The recommended land configurations are provided on Figure 5.6-18. In addition, policies and implementation measures recommended for the Compact Development Alternative listed under impact 5.6-1, above, will also apply to the Planning Commission Environmental Review Alternative.

Additional Mitigation

The following specific roadway improvements/mitigation measures are recommended for the PC Environmental Review 2030 timeframe.

- 5.6-1. Intersection No. 1 - Sperry Ave/I-5 SB Off Ramps. Signalize intersection. Southbound: add left turn lane. Westbound: add two left turn lanes.

Funding: Not completely funded in 2010. Partial funding in 2007 Regional Transportation Plan Tier I; partially funded by City traffic impact fees.

- 5.6-2. Intersection No. 2 - Sperry Ave/I-5 NB On-Ramps. Signalize intersection. Eastbound: add left turn and through lane. Westbound: add a right turn lane. Northbound: add right turn lane.

Funding: Not completely funded in 2010. Partial funding in 2007 Regional Transportation Plan Tier I; partially funded by City traffic impact fees.

- 5.6-3. Intersection No. 7 - Sperry Ave/Las Palmas Ave. Signalize intersection.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-4. Intersection No. 8 - Sperry Ave/Ward Ave. Eastbound: add one left turn lane. Northbound: add a left turn lane. Southbound: add a right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-5. Intersection No. 9 - Sperry Avenue/S. Del Puerto Avenue. Add eastbound and westbound left turn lanes.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-6. Intersection No. 10 - Sperry Ave/SR 33 Signalize intersection. Eastbound: add left turn and right turn lanes. Westbound: add a left turn lane. Northbound: add two left turn lanes. Southbound: add a left turn lane; restripe the shared through and left turn lane as a shared through and right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-7. Intersection No. 13 - Ward Ave/SR 33. Signalize intersection. Add a northbound left turn lane. Add one through lane to the northbound and southbound.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-8 Intersection No. 14 - Zacharias Rd/SR 33. It is assumed that this intersection will be realigned as a part of the proposed South County Corridor project. Signalize intersection. Northbound: add two left turn lanes. Eastbound: add a left turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-9 Intersection No. 15 - Baldwin Rd/SR 33. Signalize intersection and add left-turn lane in the northbound. And add a southbound right-turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-10 Intersection No. 16 - Rogers Rd/SR 33. Signalize intersection. Add eastbound and northbound left turn lanes. Southbound: add a right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-11 Intersection No. 17 - SR 33/Eucalyptus Ave. Southbound: add a left turn and through lane. Northbound: add a through lane

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-12 Intersection No. 19 - Walnut Ave/M Street/SR 33 Signalize intersection. Eastbound, Westbound: add a left turn lane and restripe shared through and left turn lane as a shared through and right turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-13 Intersection No. 20 - E. Las Palmas Ave/Sycamore Ave Signalize intersection. Add left-turn lane to southbound and northbound approaches.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

- 5.6-15 Intersection No. 11 - East Las Palmas Ave/SR 33. Add additional westbound left turn lane.

Funding: Not completely funded in 2010. Included in City traffic impact fees.

With the above recommended improvements impacts to traffic associated with development accommodated by the 20-year growth boundary of the Planning Commission Environmental Review Alternative would be less than significant. However, as discussed above, although the City has adopted a development impact fee ordinance and has included the partial cost of these improvements in currently-collected fees on new development, none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, these impacts are considered **significant and unavoidable**.

Planning Commission Environmental Review Alternative Traffic in the 40 year buildout Timeframe

Impact 5.6-6 Development accommodated within the 20 to 40 growth limit of the Planning Commission Environmental Review alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area by the year 2050 which could reduce the level of service on roadways and intersections serving the Study Area. This impact is considered potentially significant.

Year 2050 trips generation associated with the 20 to 40 year growth limits of the PC Environmental Review Alternative is shown in Table 5.6-22.

Table 5.6-22: 2050 Trip Generation – PC Environmental Review Alternative

Land Use/ ITE Code	Size/ Units	AM Peak Hour					PM Peak Hour				
		Rate	% In:Out	Trips In	Trips Out	Total	Rate	% In/Out	Trips In	Trips Out	Total
Single Family (210)	1,912	0.75	25:75	358	1,075	1,434	1.01	63:37	1,216	714	1,931
Multi Family (230)	1989.734	0.44	17:75	149	727	875	0.52	67:33	693	341	1,035
Retail (820)	2,219	1	61:75	1,354	865	2,219	3.73	49:51	4,056	4,222	8,278
Service/Office (710)	800	1.55	88:75	1,091	149	1,239	1.49	17:83	203	989	1,192
Industrial (130)	545	0.84	82:75	375	82	457	0.86	21:79	98	370	468
Total (du)	3,901										
Total (ksf)	3,563			3,327	2,899	6,225			6,267	6,636	12,903

Source: TJKM, 2010

Notes:

1. du = dwelling unit ksf = thousand square feet

Estimated Level of Service

The estimated levels of service for roadways serving the PC Environmental Review Alternative are provided in Table 5.6-23.

Table 5.6-23: 2050 Road Segment Levels of Service – PC Environmental Review Alternative					
No.	Roadway Segment	Dir. Lanes	P.M. Peak Hour		
			ADT (Veh.)	Speed (mph)	LOS
A	Rogers Rd, s/o Zacharias Rd	1	35,386	20.2	E
B	Sperry Ave. e/o Rogers Rd.	2	36,072	27.7	C
C	Baldwin Rd., n/o Sperry Ave.	1	10,840	22.2	C
D	Sperry Ave. e/o Ward Ave.	2	16,069	27.6	C
E	Ward Ave., n/o Las Palmas Ave.	1	12,650	20.5	C
F	Zacharias Rd, w/o SR 33	1	37,046	23.5	D
G	SR-33, n/o Zacharias Rd.	1	18,963	22.6	D
H	SR-33, s/o Walnut Ave.	1	20,312	21.0	D
I	Ward Ave., n/o Marshall Rd.	1	21,569	22.4	C
J	SR-33, s/o Sperry Ave.	1	19,131	26.4	D
N	E Las Palmas Ave., w/o Sycamore Ave.	1	25,771	21.4	D
O	Main St., e/o of Carpenter Rd.	1	20,764	24.4	C
Source: TJKM, 2010 and Highway Capacity 2000- Urban Streets Analysis					

Draft Policy Document Response

Potential traffic impacts associated with urban development between 2030 and 2050 accommodated by the Planning Commission Environmental Review Alternative will be partially mitigated by the following:

- Improvements recommended by the Preliminary Circulation Plan;
- Improvements recommended by the Regional Transportation Plan;
- Policies and implementation measures recommended by the Draft Policy Document;
- Additional mitigation recommended for 2030 for the Planning Commission Environmental Review Alternative under impact 5.6-4.

Additional Mitigation

The following additional mitigation measures are recommended.

Recommended Implementation Measures

- T-18 The City shall continue to monitor traffic levels on roadways and intersections serving the City and to require the installation of roadway and intersection improvements necessary to maintain the desired level of service.

- T-19 The City shall refine the analysis of future traffic conditions during the 2030 to 2050 timeframes as the traffic model used by the Stanislaus Council of Governments is updated to include the 2050 timeframe.

- T-18 The City shall continue to monitor traffic levels on roadways and intersections serving the City and to require the installation of roadway and intersection improvements necessary to maintain the desired level of service.

- T-19 The City shall refine the analysis of future traffic conditions during the 2030 to 2050 timeframes as the traffic model used by the Stanislaus Council of Governments is updated to include the 2050 timeframe.

- T-20 Based on traffic monitoring, consider implementing the following roadway improvements as needed to maintain an acceptable level of service on street segments and intersections:
 - a. Widening Rogers Road north of Sperry Avenue to four lanes.
 - b. Widen Zacharias Road and Eucalyptus Avenue to four lanes, or complete the South County Corridor.
 - c. Widen the West Main Street bridge over the San Joaquin River to six lanes or provide a separate bridge/roadway.
 - d. Signalize the intersection of State Route 33 and Baldwin Road.
 - e. Signalize the intersection of State Route 33 and Olive Avenue.
 - f. Widen State Route 33 to four lanes from Sperry Avenue to Rogers Road.

Recommended mitigation measures a., b., and f. of implementation measure T-20 are included in the 2007 Regional Transportation Plan as a Tier II project (with estimated costs but no funding). Measure 4. is included in the City's current development impact fee program, and mitigation 5. currently has no funding. Although the measures described above, in conjunction with the policies and implementation measures recommended for the 2030 growth timeframe, will help mitigate potential traffic impacts for the 2030 to 2050 timeframe, the precise nature of the growth in background traffic associated with development in the region between 2030 and 2050 is unknown. In addition, roadway and intersection improvements to roadways outside the City's jurisdiction may be required and cannot be guaranteed. For these reasons, traffic impacts associated with the Planning Commission Environmental Review Alternative for the years 2030 to 2050 are **significant and unavoidable**.

Increased Truck Traffic

Impact 5.6-7 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternative in the 20-year and 40 year buildout timeframes will increase truck traffic through the City, which in turn could adversely impact residential neighborhoods and result in potential traffic hazards on Study Area roadways. This impact is considered potentially significant.

Development of properties designated for additional commercial and industrial uses will generate additional truck trips for the delivery of goods. Businesses such as distribution centers, such as those previously established within the West Patterson Business Park, will likely generate a significant number of additional truck trips between the business location and roadways that connect Patterson with the region. These roadways include Interstate 5, Sperry Avenue, E. Las Palmas Avenue and State Route 33.

The percentage of average daily traffic associated with truck varies by location. Caltrans data for State Route 33 nears Crows Landing suggests that about 10 percent of the total traffic on SR33 in this area consists of trucks. Since SR 33 serves as a regional truck route serving communities other than Patterson, the percentage of trucks is considered a conservative estimate of the percentage of trucks likely to use City roadways in the future. By applying this percentage to the total average daily trips associated with each of the Equal-Weight Alternatives, an estimate of total truck trips can be estimated as shown in Table 5.6-24.

Table 5.6-24: Estimate of Future PM Peak Hour Truck Trips,
By Equal-Weight Alternative

Alternative	20-Year PM Peak Hour Trips	20 Year PM Peak Hour Truck Trips ¹	40-Year PM Peak Hour Trips	40 Year PM Peak Hour Truck trips ¹
Compact Development	32,571	3,257	10,300	4,287
Jobs Emphasis	49,255	4,925	13,400	6,265
PC Env Review	41,485	4,148	11,900	5,338

Source: TJKM, 2010

Notes:

1. Assumes 10 percent of peak hour trips are associated with trucks and that the percentage remains constant through 2050.

Regional development, such the West Park project, has the potential to significantly increase the number of trucks on regional roadways, including roadways through the City. The type and quantity of businesses that may ultimately occupy the West Park project is unknown at present, but can be inferred to be industrial businesses similar in nature to distribution centers. Thus, the total number of future truck trips in the region would likely be higher than those shown on Table 5.6-24.

The increase in truck trips could adversely impact residential neighborhoods if truck routes are not designated and enforced. This is considered a potentially significant impact for each of the Equal-Weight Alternatives for both the 20-year and 40 year buildout timeframes.

Draft Policy Document Response

Circulation Diagram

The Circulation Diagram (Figure 5.6-14) sets forth roadway and intersection improvements aimed at achieving and maintaining the desired level of service, and providing safe, efficient circulation through and around the City for regional traffic. More specifically, the Circulation Diagram provides for the following which will aid truck circulation:

- Construction of a new interchange in the vicinity of Zacharias Road and Interstate 5;
- Construction of the South County Corridor, an expressway providing a more direct and higher speed connecting the future interchange with the City of Turlock to the east ;
- Provision of a southern by-pass to connect points east of the City with State Route 33 south of the City;
- The easterly extension of Sperry Avenue to connect with E. Las Palmas Avenue to provide another east-west route between Interstate 5 and points to the east;

Policies

T-1.6 South County Corridor. The City shall promote efforts of Stanislaus County, StanCOG and other stakeholders in the development of the South County Corridor to connect E. Las Palmas Avenue to Interstate 5. The final alignment should be decided through a cooperative effort among stakeholders, and informed by a comprehensive feasibility study that assesses at least the following:

- The appropriate right-of-way width and location;
- Environmental and regulatory constraints, especially as they relate to agricultural and biological resources;
- The need for, and economic/environmental feasibility of, constructing a second bridge over the San Joaquin River;
- An estimate of relevant costs; and
- An analysis of alternatives;

T-1.7 Sperry Avenue Corridor. The City shall establish a roadway connection between Sperry Avenue and East Las Palmas to divert east-west through traffic from the downtown area.

T-1.9 Truck access to avoid residential neighborhoods. Industrial and commercial development shall be planned so that truck access through residential areas is avoided.

T-1.10 Funding of traffic improvements. The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.

T-1.13 New interchange. The City shall investigate the construction of a new interchange at Interstate 5 north of Sperry Avenue in the vicinity of Zacharias Road.

- T-1.14 Protection of Neighborhoods.** The City shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.
- HS-4.11 Noise sensitive land uses.** New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.
- HS-4.12 Transportation noise sources and mitigation.** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table HS-3 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.

Table HS-3: Noise Level Performance Standards For New Projects Affected By Or Including Transportation Sources		
Land Use	Outdoor Activity Areas ¹	Interior Spaces
	Ldn/CNEL, DbLdn/CNEL,	dbLeq, Db ²
Residential	60 ³	45
Transient Lodging	60 ³	45
Hospitals, Nursing Homes	60 ³	45
Theaters, Auditoriums, Music Halls		35
Churches, Meeting Halls	60 ³	40
Office Buildings	60 ³	45
Schools, Libraries, Museums		45
Playgrounds, Neighborhood Parks	70	
1. 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. 2. As determined for a typical worst-case hour during periods of use. 3. Where it is not possible to reduce noise in outdoor activity areas to 60 Db Ldn/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.		

- HS-4.13 Acoustical analysis required.** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table HS-1 or the performance standards of Table HS-3, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.
- HS-4.14 Minimize the use of noise barriers.** Where noise mitigation measures are required to achieve the standards of Tables HS-1 and HS-3, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall only be considered a supplemental means of achieving the noise standards after all practical design-related noise mitigation measures have been integrated into the project.

Implementation Measures

- T-2. The City shall maintain a Street Master Plan showing the existing and proposed ultimate rights-of-way and street width for each road segment within the city. The Street Master Plan shall be based on the adopted Circulation Diagram and indicate the necessary rights-of-way to be acquired or dedicated. The Street Master Plan shall be regularly updated.
- T-3 The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4 The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-11 The City shall work with Caltrans to prepare a Project Study Report (PSR) for a new interchange north of the City in the vicinity of Zacharias Road and Interstate 5.
- T-12 The City shall participate in efforts to establish a South County Corridor to connect East Las Palmas Avenue with Interstate 5.
- T-13 The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.
- T-14 The City shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.
- HS-5 The City shall review and revise as necessary its noise control ordinance to regulate existing noise sources.
- HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.

- HS-7 The City shall enforce state noise insulation standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code (UB C). Title 24 requires that an acoustical analysis be prepared for all new developments of multi-family dwellings, condominiums, hotels and motels proposed for areas within the 60 Db Ld], contour of a major noise source for the purpose of documenting that an acceptable interior noise level of 45 Db L- or below will be achieved. TJBC Chapter 35 requires that common wall and floor/ceiling assemblies within multi-family dwellings comply with minimum standards for the transmission of airborne sound and structure-borne impact noise.
- HS-8 The City shall develop and employ procedures to monitor compliance with noise mitigation standards after projects are completed.

Additional Mitigation

In addition to the policies and implementation measures recommended by the Draft Policy Document, the truck route plan shown on Figure 5.6-19 shall be incorporated into the Circulation Element.

With the above recommended improvements impacts related to truck traffic would be less than significant. However, as discussed above, although the City has adopted a development impact fee ordinance and has included the partial cost of improvements recommended under impact 5.6-1, 5.6-3 and 5.6-5 in currently-collected fees on new development, none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. In addition, increased truck traffic could adversely increase the effects upon existing neighborhoods. Therefore, the impacts are considered **significant and unavoidable**.

Figure 5.6-19: Recommended Truck Routes



Impacts to Roadways and Intersections of Other Agencies

Impact 5.6-8 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives would result in impacts to roadway segments and intersections located in adjacent jurisdictions that do not meet the jurisdiction's minimum acceptable level of service threshold in both the 2030 and 2050 timeframes. This impact is considered potentially significant

Roadways surrounding the City (other than State highways) are improved and maintained by Stanislaus County. As discussed under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6, traffic generated by each of the Equal-Weight Alternatives will result in roadways and intersections surrounding the City in the unincorporated County to operate at Level of Service C or below, in the absence of mitigation. This impact is considered potentially significant.

Implementation Measures

- T-11 The City shall work with Caltrans to prepare a Project Study Report (PSR) for a new interchange north of the City in the vicinity of Zacharias Road and Interstate 5.
- T-12 The City shall participate in efforts to establish a South County Corridor to connect East Las Palmas Avenue with Interstate 5.
- T-13 The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.

These intersections and roadways are provided in the following table.

Table 5.6-25: Level of Service On Roadways and Intersections of Other Jurisdictions

Table 5.6-25: Level of Service On Roadways and Intersections of Other Jurisdictions							
Roadway Segment/Intersection	Jurisdiction	PM Peak Hour LOS Under the Compact Development Alternative		PM Peak Hour LOS Under the Jobs Emphasis Alternative		PM Peak Hour LOS Under the PC Environmental Review Alternative	
		2030	2050	2030	2050	2030	2050
Intersections							
1. Sperry Ave/I-5 SB Off-Ramps	Caltrans	F	--	F	--	F	--
2. Sperry Ave/I-5 NB On-Ramps	Caltrans	F	--	F	--	F	--
10. Sperry Ave/SR-33	Caltrans	F	--	F	--	F	--
14. Zacharias Rd/SR-33	Caltrans	F	--	F	--	F	--
17. SR-33/Eucalyptus	Caltrans	F	--	F	--	F	--
18. Olive Avenue/SR-33	Caltrans	F	--	F	--	F	--
19. Walnut Ave/M Street/SR 33	Caltrans	F	--	F	--	F	--
20. Las Palmas Ave./Sycamore Ave	Stanislaus County	F	--	F	--	F	--
21. Poplar Ave/Las Palmas Ave	Stanislaus County	F	--	F	--	F	--
22. Carpenter Rd/W Main Ave	Stanislaus County	F	--	F	--	F	--
23. Crows Landing Rd/W Main Ave	Stanislaus County	F	--	F	--	F	--
Roadway Segments							
Rogers Rd, s/o Zacharias Rd	Stanislaus County	D	D	D	D	D	D
SR-33, n/o Zacharias Rd.	Caltrans	D	D	D	D	D	D
SR-33, s/o Walnut Ave.	Caltrans	C	C	C	C	D	C
SR-33, s/o Sperry Ave.	Caltrans	D	D	D	D	D	D
Source: TJKM, 2010							
Notes:							
1. Stanislaus County has adopted LOS C.							

Since Stanislaus County has the decision-making authority on implementing improvements to County roadways, the City of Patterson cannot guarantee implementation and/or the timing of the mitigation measures listed above for roadway outside the City. Therefore, impacts to County roadways would remain **significant and unavoidable**.

Impacts to Interstate 5

Impact 5.6-9 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives during the 2030 and 2050 timeframes could result in segments of Interstate 5 that do not meet Caltrans minimum acceptable level of service threshold. This impact is potentially significant.

Traffic generated by each of the Equal-Weight Alternatives will adversely impact Interstate 5. This is considered a potentially significant impact. Tables 5.6-26, 5.6-27 and 5.6-28 summarize the traffic volumes on Interstate 5 at 2030 and 2050 for each of the Equal-Weight Alternatives. As shown on each table, Interstate 5 is expected to operate at Level of Service D north of Sperry Avenue, and LOS E south of Sperry Avenue and south of Fink Road. The tables show levels of service with and without the proposed mitigation.

Table 5.6-26: 2030 and 2050 Freeway Levels of Service –
Compact Development Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour			Lanes	2050 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS		Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	3,570	28.3	D	3	5,653	30.6	D
	<i>Mitigated</i>	3	3,570	18.0	B	4	5,653	21.4	C
L	I-5, s/o Sperry Ave.	2	4,333	40.0	E	3	6,695	43.0	E
	<i>Mitigated</i>	3	4,333	21.9	C	4	6,695	26.0	C
M	I-5, s/o Fink Rd.	2	3,606	31.7	D	3	5,981	38.3	E
	<i>Mitigated</i>	3	3,606	19.4	C	4	5,981	24.5	C

Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Table 5.6-27: 2030 and 2050 Freeway Levels of Service –
Jobs Emphasis Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour			Lanes	2050 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS		Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	4,167	36.7	E	3	6,797	44.7	E
	<i>Mitigated</i>	3	4,167	21.0	C	4	6,797	26.5	D
L	I-5, s/o Sperry Ave.	2	4,498	43.9	E	3	7,042	-	F
	<i>Mitigated</i>	3	4,498	22.8	C	4	7,042	27.7	D
M	I-5, s/o Fink Rd.	2	3,820	35.1	E	3	6,272	42.9	E
	<i>Mitigated</i>	3	3,820	20.5	C	4	6,272	25.9	C

Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Table 5.6-28: 2030 and 2050 Freeway Levels of Service –
PC Environmental Review Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour			Lanes	2050 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS		Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	3,576	28.3	D	3	5,529	29.6	D
	<i>Mitigated</i>	3	3,576	18.0	B	4	5,529	20.9	C
L	I-5, s/o Sperry Ave.	2	4,381	41.0	E	3	6,687	42.9	E
	<i>Mitigated</i>	3	4,381	22.2	C	4	6,687	25.9	C
M	I-5, s/o Fink Rd.	2	3,632	32.1	D	3	5,970	38.2	E
	<i>Mitigated</i>	3	3,632	19.5	C	4	5,970	24.4	C

Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Policy Document Response

Policies and implementation measures recommended for the Compact Development Alternative listed under impact 5.6-1, above, will also apply to the Planning Commission Environmental Review Alternative.

- T-1.10 Funding of traffic improvements.** The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.

- T-1.13 New interchange.** The City shall investigate the construction of a new interchange at Interstate 5 north of Sperry Avenue in the vicinity of Zacharias Road.

- T-2.1 Dial-a-ride.** The City shall work to assure that West Side Dial-a-Ride service is responsive to local needs.

- T-2.2 Bus transportation.** The City shall work with the County to maintain a van/minibus transportation system tailored to the needs of the elderly and disabled, which can be expanded in the future.

- T-2.3 Taxi service.** The City shall encourage the establishment of private taxi service in Patterson.

- T-3.1 Ridesharing.** The City shall encourage and support programs which will increase ridesharing.

- T-3.2 Park and ride lots.** The City shall cooperate with Caltrans in the development of park-and-ride facilities near Interstate 5.

- T-3.3 Rideshare coordination.** The City shall organize a voluntary ride-share coordination system for commuters.

- T-5.1 Regional coordination.** The City shall continue to participate in state, regional, and local transportation planning efforts to ensure coordination of the expansion and improvement of the region's transportation system.

- T-5.2 Communication among agencies.** The City shall continue to develop formal and informal lines of communication among adjacent jurisdictions to ensure cooperation in the development of transportation systems that cross jurisdictional boundaries.

- AQ-1.11 Consultation with transit providers.** The City shall consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.

- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.

- AR-2.1 Trip reduction programs.** The City shall promote the implementation of innovative employer-based trip reduction programs for employees.
- AR-2.2 City fleet vehicles.** The City shall consider replacing or converting conventional fuel vehicles to clean fuel vehicles as rapidly as feasible.
- AR-2.3 Teleconferencing.** The City shall support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.
- AR-2.4 Teleconferencing centers.** The City shall work to establish public/private partnerships to develop satellite and neighborhood work centers for telecommuting.
- AR-2.5 Commute reduction.** The City shall promote the expansion of employment opportunities in Patterson to reduce the volume and distance of home-to-work commute trips by motor vehicle.
- AR-3.1 Priority to existing roadways.** The City shall consider measures to increase the capacity of the existing road network prior to constructing more capacity (additional lanes, new freeways, etc.).
- AR-3.2 Promote alternate modes of travel.** The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.
- AR-3.3 Park and Ride.** The City shall plan park and ride lots at suitable locations serving long distance and local commuters.
- AR-3.4 Intersection design.** Major intersections shall be designed to minimize situations (such as long vehicle delays) which can adversely affect localized air quality.
- NR-4.3 Patterns of Development.** The City shall promote patterns of development that provide a complimentary range of land uses to serve the daily needs of nearby residents and minimize dependence on the automobile.

Implementation Measures

- T-3** The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4** The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-5** The City shall operate the traffic signal system to maximize traffic flow. The timing of traffic signals shall be updated at least once every four years. (See Implementation Measure NR-7.)

- T-6 The City shall continue to investigate new technologies to help ensure the transportation system operates at the highest efficiency for the lowest cost.
- T-7 The City shall prepare roadway design standards for new and existing streets, roads and roundabouts. Such standards should include right-of-way width, roadway section design, and dedication requirements for new development to accommodate traffic levels expected at buildout of the General Plan. The roadway design standards should be interpreted with flexibility so that the roadways provided are no wider than required to maintain safe and efficient circulation and access.
- T-11 The City shall work with Caltrans to prepare a Project Study Report (PSR) for a new interchange north of the City in the vicinity of Zacharias Road and Interstate 5.
- T-12 The City shall participate in efforts to establish a South County Corridor to connect East Las Palmas Avenue with Interstate 5.
- T-13 The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.
- T-14 The City shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.

Additional Mitigation

The mitigation recommended by the traffic study is to add an additional lane in each direction on I-5 from north of Zacharias Avenue to south of Fink Road. However, since Caltrans has the decision-making authority for the implementation of improvements to the freeway segments described above, the City of Patterson cannot guarantee implementation and/or the timing of this mitigation measure; therefore, the impact would remain **significant and unavoidable**.

Impacts to Transit Facilities

Impact 5.6-10 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives could increase the demand for transit facilities in the 20-year and 40 year buildout timeframes. This impact is considered potentially significant.

Each of the Equal-Weight Alternatives will significantly increase the population and number of jobs in the City through 2050. Together, the increases in population and employment accommodated by each alternative will result in an increased demand for transit services in the City. This impact is considered less than significant. Impacts associated with the construction of transit facilities are similar to those associated with public and quasi-public facilities which are addressed in the topical sections of this EIR.

Policy Document Response

- T-2.1 **Dial-a-ride.** The City shall work to assure that West Side Dial-a-Ride service is responsive to local needs.

- T-2.2 Bus transportation.** The City shall work with the County to maintain a van/minibus transportation system tailored to the needs of the elderly and disabled, which can be expanded in the future.
- T-2.3 Taxi service.** The City shall encourage the establishment of private taxi service in Patterson.
- AQ-1.11 Consultation with transit providers.** The City shall consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.
- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.
- AR-3.2 Promote alternate modes of travel.** The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.
- AR-3.3 Park and Ride.** The City shall plan park and ride lots at suitable locations serving long distance and local commuters.
- LU-1.1 Development strategy.** The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:
- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - e. Short blocks with a substantial tree canopy shading the street and sidewalk;
 - f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - g. A sense of personal safety;
 - h. Elements that foster the sustainable use of scarce or non-renewable resources.
 - i. Mixed-use development in which complementary uses are placed on a single building site one above the other (vertically) or in close proximity (horizontally).

Implementation Measures

- T-13** The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.
- T-14** The City shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.

Policies recommended by the draft Policy Document are aimed at facilitating the expanded use of alternate forms of transportation, including public transit. Moreover, the development strategy envisioned by the Land Use element emphasizes the creation of “complete” neighborhoods in which the day-to-day needs of residents can be provided within a short walk or bike ride. Lastly, each of the Equal-Weight Alternatives designates additional land for employment opportunities in Patterson as a means of improving the ratio of jobs to housing, which in turn is expected to reduce area-wide home-to-work motor vehicle trips and facilitate the use of transit for these trips. With the policies and implementation measures set forth above, the impacts to transit would be less than significant.

However, because some of the improvements are dependent upon funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing. Therefore, the impacts are **significant and unavoidable**.

Additional Mitigation

None.

Impacts to Pedestrian Facilities

Impact 5.6-11 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives could result in an impact on pedestrian facilities through the 20-year and 40 year buildout timeframes. This impact is considered **potentially significant**.

Each of the Equal-Weight Alternatives will accommodate a significant increase in population, employment and retail development over current levels which in turn will result in an overall increase in the generation of pedestrian trips in the City. Although a precise measure of current levels of pedestrian activity is not available, pedestrian trips may be expected to grow proportionally with population and employment. The construction of additional pedestrian facilities has the potential to result in adverse physical impacts. In addition, new or expanded pedestrian facilities may require construction in roadways outside the jurisdiction of the City. For these reasons, this impact is considered **potentially significant**.

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Policies

T-1.4 City standards for streets. Streets shall be dedicated, widened, extended, and constructed based on the roadway classifications/definitions and street sections provided in the City’s roadway improvement standards and Street Master Plan (see implementation measure T-2). Dedication and improvements of full rights-of-way shall not be required in existing developed areas where the City determines that such improvements are either infeasible or undesirable. Other deviations from these standards shall be permitted upon a determination by the City Engineer that safe and adequate public access and circulation are preserved by such deviations.

- T-1.14 Protection of Neighborhoods.** The City shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.
- T-7.1 Safe pedestrian and bike pathways.** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its share of the costs for development of this pathway system.
- T-7.2 Pedestrian access.** All new development shall be reviewed to ensure safe pedestrian access is provided from the street, within parking areas and between new development and surrounding neighborhoods.
- T-7.5 Include pathways in open space.** To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.
- T-7.10 Coordination with other agencies.** The City shall coordinate with Stanislaus County, the Stanislaus Council of Governments, Caltrans and other agencies to improve bicycle and pedestrian circulation region-wide.
- LU-1.1 Development strategy.** The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:
- A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - Short blocks with a substantial tree canopy shading the street and sidewalk;
 - Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - A sense of personal safety;
 - Elements that foster the sustainable use of scarce or non-renewable resources.
 - Mixed-use development in which complementary uses are placed on a single building site one above the other (vertically) or in close proximity (horizontally).
- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.
- AR-3.2 Promote alternate modes of travel.** The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.

Implementation Measures

- T-3 The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4 The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-10 The City shall implement the Downtown Physical Design Plan to promote safe pedestrian circulation in the Downtown.
- T-16 The City shall consider improving lighting and striping (marked crosswalks), and install pedestrian-activated push buttons for signals. Install ground-lights along crosswalks that flash to alert drivers of pedestrians at night (activated by weight sensors) in high-use areas such as Downtown.
- T-17 Use textured or raised pavement in retail/commercial areas and other areas of high pedestrian activity.

The development strategy embodied by policies of the Land Use Element encourage the development of “complete” neighborhoods in which more of the day-to-day needs of residents is provided within a short walk or bicycle ride. Thus, an increase in pedestrian traffic is an expected and encouraged outcome of all three Equal-Weight Alternatives. In addition, each of the Equal-Weight Alternatives designates land for additional employment-generating land uses which in turn is expected to help reduce motor vehicle use for home-work trips. Lastly, the City’s development regulations provided in Chapter 15.26 of the Patterson Municipal Code require the installation of curbs, gutters and sidewalks in new development. Together the recommended policies, implementation measures and provisions of the Patterson Municipal Code could reduce potential impacts to pedestrian systems from each of the three Equal-Weight Alternatives to a less than significant level. However, new or expanded pedestrian facilities may require construction in roadways outside the jurisdiction of the City. Because some pedestrian improvements necessary to serve the Equal-Weight Alternatives are dependent upon the funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing. Therefore, the impacts are **significant and unavoidable**.

Additional Mitigation

None available.

Impacts to Bicycle Facilities

Impact 5.6-12 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives would adversely affect bicycle facilities through the 20-year and 40 year buildout timeframes. This impact is considered potentially significant.

As discussed in section 5.2 Housing and Population, each of the Equal-Weight Alternatives will accommodate a significant increase in population, employment and retail development over current levels. As with transit and pedestrian systems, bicycle ridership is expected to increase proportionately to population, employment and shopping and is a desired outcome for each of the Equal-Weight

Alternatives. The construction of additional bicycle facilities has the potential to result in adverse physical impacts. In addition, new or expanded bicycle facilities may require construction in roadways outside the jurisdiction of the City. For these reasons, this impact is considered **potentially significant**.

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Policies

- T-1.4 City standards for streets.** Streets shall be dedicated, widened, extended, and constructed based on the roadway classifications/definitions and street sections provided in the City's roadway improvement standards and Street Master Plan (see implementation measure T-2). Dedication and improvements of full rights-of-way shall not be required in existing developed areas where the City determines that such improvements are either infeasible or undesirable. Other deviations from these standards shall be permitted upon a determination by the City Engineer that safe and adequate public access and circulation are preserved by such deviations.
- T-1.10 Funding of traffic improvements.** The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.
- T-5.1 Regional coordination.** The City shall continue to participate in state, regional, and local transportation planning efforts to ensure coordination of the expansion and improvement of the region's transportation system.
- T-5.2 Communication among agencies.** The City shall continue to develop formal and informal lines of communication among adjacent jurisdictions to ensure cooperation in the development of transportation systems that cross jurisdictional boundaries.
- T-7.1 Safe pedestrian and bike pathways.** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its share of the costs for development of this pathway system.
- T-7.3 Bike routes.** The City shall establish a safe and convenient network of identified bicycle routes connecting new residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.
- T-7.4 Separation of bike routes from motor vehicles.** Bicycle routes shall emphasize paths separated from vehicle traffic (Class I) to the maximum extent possible, but shall also include bicycle lanes within public streets (Class II and III). The City shall limit on-street bicycle routes to

those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.

- T-7.5 Include pathways in open space.** To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.
- T-7.6 Bike storage.** The City shall require the inclusion of bicycle parking facilities at all new major public facilities and commercial and employment sites and shall encourage large employers to provide showers for employees.
- T-7.7 Bicycle-automobile conflicts.** The City shall promote the safe “sharing” of roads between automobiles and bicyclists.
- T-7.8 Bike safety.** Bicycle safety shall be considered when implementing improvements for automobile traffic operations.
- T-7.9 Coordination with schools.** The City will collaborate with the School District to promote bike use and shall actively pursue Safe Route to School grants to fund programs that facilitate safe bike routes.
- T-7.10 Coordination with other agencies.** The City shall coordinate with Stanislaus County, the Stanislaus Council of Governments, Caltrans and other agencies to improve bicycle and pedestrian circulation region-wide.
- LU-1.1 Development strategy.** The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics:
- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
 - b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
 - c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
 - d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
 - e. Short blocks with a substantial tree canopy shading the street and sidewalk;
 - f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
 - g. A sense of personal safety;
 - h. Elements that foster the sustainable use of scarce or non-renewable resources.
 - i. Mixed-use development in which complementary uses are placed on a single building site one above the other (vertically) or in close proximity (horizontally).
- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.

AR-3.2 Promote alternate modes of travel. The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.

Implementation Measures

- T-3 The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4 The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-8 The City shall develop and adopt a bicycle master plan with measurable objectives and incorporate this plan into a new trails master plan.
- T-9 The City shall amend the Downtown Physical Design Plan to incorporate a bicycle circulation and safety plan, including bike parking and safe routes through Downtown.
- T-13 The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.
- T-14 The City shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.

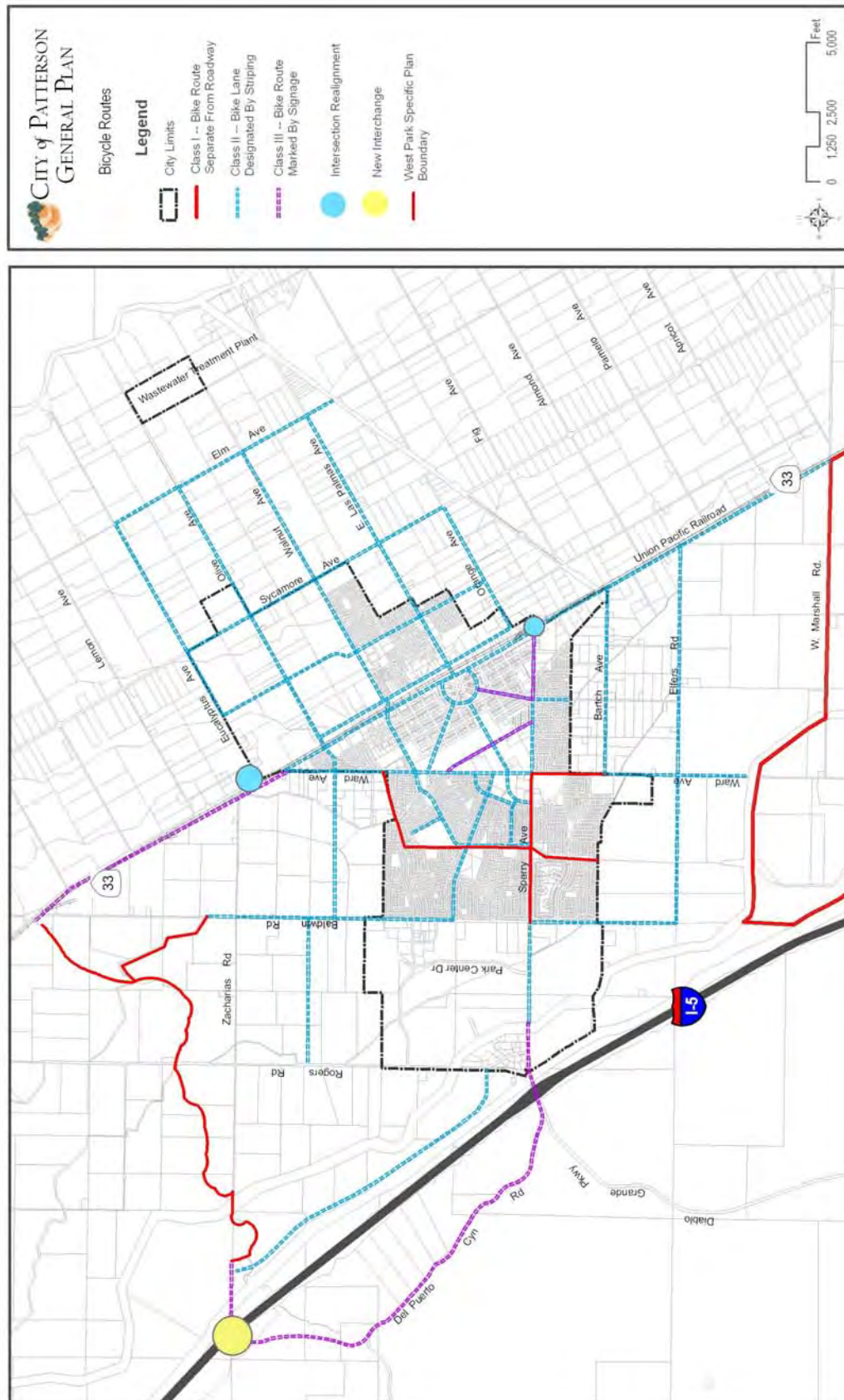
As discussed in the setting, the City has adopted a Bicycle Master Plan which sets forth the City's desired program for improvement to the bicycle circulation system. The City has required new development to implement relevant portions of the Master Plan affected by such development.

The development strategy embodied by policies of the Land Use Element encourage the development of "complete" neighborhoods in which more of the day-to-day needs of residents is provided within a short walk or bicycle ride. Thus, an increase in bicycle traffic is an expected and encouraged outcome of all three Equal-Weight Alternatives. In addition, each of the Equal-Weight Alternatives designates land for additional employment-generating land uses which in turn is expected to help reduce motor vehicle use for home-work trips and facilitate the use of alternate modes of travel such as bicycles. Together the recommended policies, implementation measures and provisions of the Patterson Municipal Code could reduce potential impacts to bicycle systems from each of the three Equal-Weight Alternatives to a less than significant level. However, new or expanded bicycle facilities may require construction in roadways outside the jurisdiction of the City. In addition, because some bicycle improvements necessary to serve the Equal-Weight Alternatives are dependent upon the funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing. For these reasons impacts to bicycle facilities is considered **significant and unavoidable**.

Additional Mitigation

As part of the traffic analysis prepared for this EIR, a recommended bicycle circulation plan has been prepared to provide the programmatic framework from which to update the City's Bicycle Circulation Master Plan. The recommended bicycle circulation plan is provided as Figure 5.6-20.

Figure 5.6-20: Recommended Bicycle Circulation Plan



Impacts to Parking Facilities

Impact 5.6-13 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review alternatives could adversely affect parking facilities in the 20-year and 40 year buildout timeframes. This impact is considered less than significant.

Each of the Equal-Weight Alternatives will accommodate a significant increase in population, employment and retail development over current levels. As discussed in the Setting section, the City studied on-street parking in the Downtown in 1989 and identified a number of relatively minor issues associated with parking supply and demand. The increase in population, employment and shopping is expected to result in a corresponding increase in the demand for on-street and off-street parking in the City. This impact is considered less than significant.

Mitigation Provided By Existing Regulations

Chapter 18.72 of the Patterson Municipal Code (zoning) sets forth the City's parking standards for new development. All new development is required to comply with the off-street parking and loading requirements with respect to the number, location and size of required spaces, including spaces for the handicapped.

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- T-6.1 Removal of on-street parking.** If future growth in traffic volumes necessitates removal of on-street parking places to provide additional traffic lanes, the City shall ensure that the lost on-street spaces are replaced with an equal number of off-street spaces within the same vicinity, when feasible. Parking lots contiguous to downtown streets should not be sited at intersections but rather sited in mid-block locations.
- T-6.2 Off-street parking required.** The City shall require provision of adequate off-street parking in conjunction with all new developments. Parking shall be located convenient to new development and shall be easily accessible from the street system. The adequacy and appropriateness of parking requirements in the Zoning Ordinance shall be periodically reevaluated.
- T-6.3 Parking lots in the downtown.** In the downtown, the amount of street frontage devoted to parking lots should be minimized, particularly along Las Palmas and Ward Avenue and around the Plaza.
- T-6.4 Public parking in the downtown.** The City shall investigate the purchase of vacant parcels within El Circulo for the development of public parking lots.

- T-6.5 Employee parking.** The City shall encourage business owners and employees in the downtown, including employees of the City of Patterson, to park their vehicles at more distant locations to free up parking spaces within the downtown.
- T-6.6 Truck parking.** On-street truck parking shall be prohibited where such parking restricts adequate sight distances or otherwise poses a potentially hazardous situation.
- T-7.1 Safe pedestrian and bike pathways.** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its share of the costs for development of this pathway system.
- T-7.2 Pedestrian access.** All new development shall be reviewed to ensure safe pedestrian access is provided from the street, within parking areas and between new development and surrounding neighborhoods.
- T-7.3 Bike routes.** The City shall establish a safe and convenient network of identified bicycle routes connecting new residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.
- T-7.4 Separation of bike routes from motor vehicles.** Bicycle routes shall emphasize paths separated from vehicle traffic (Class I) to the maximum extent possible, but shall also include bicycle lanes within public streets (Class II and III). The City shall limit on-street bicycle routes to those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.
- T-7.5 Include pathways in open space.** To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.
- T-7.6 Bike storage.** The City shall require the inclusion of bicycle parking facilities at all new major public facilities and commercial and employment sites and shall encourage large employers to provide showers for employees.
- T-7.7 Bicycle-automobile conflicts.** The City shall promote the safe “sharing” of roads between automobiles and bicyclists.
- T-7.8 Bike safety.** Bicycle safety shall be considered when implementing improvements for automobile traffic operations.
- T-7.9 Coordination with schools.** The City shall collaborate with the School District to promote bike use and shall actively pursue Safe Route to School grants to fund programs that facilitate safe bike routes.

- T-7.10 Coordination with other agencies.** The City shall coordinate with Stanislaus County, the Stanislaus Council of Governments, Caltrans and other agencies to improve bicycle and pedestrian circulation region-wide.

Implementation Measures

- T-3** The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-15** The City shall conduct a study to determine the costs and benefits of metered parking in Downtown. More expensive parking will motivate people to take alternative transportation, or at the very least, motivate people to limit the number of trips that require paid parking.

As new development takes place under any of the Equal-Weight Alternative it will be required to install off-street parking in accordance with the provisions of the Patterson Municipal Code and to comply with the policies and implementation measures described above. With implementation of existing regulations and recommended policies and implementation measures potential impacts to parking are considered less than significant.

Potential Traffic Hazards

Impact 5.6-14 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area through the 20-year and 40 year buildout timeframes, which in turn could increase potential traffic hazards. This impact is considered potentially significant.

As demonstrated by the summary of trip generation described above for impacts 5.6-1 through 5.6-6, urban development accommodated by each of the Equal-Weight Alternatives will significantly increase the volume of traffic on City streets and intersections. As a result, the number and frequency of traffic related accidents and the overall hazard associated with motor vehicle and bicycle traffic could increase. This is considered a potentially significant impact.

As discussed under the Setting, the City experiences a relatively low number of traffic accidents. Overall, traffic related incidents per 1,000 residents were highest during the years from 2000 to 2005. The number of collisions, however, has remained relatively stable over time. Over the ten year period from 1998 to 2007 there were a very small number of fatal traffic collisions, with an average number of fatal collisions per 1,000 residents of 0.02. For example, according to the California Highway Patrol, Stanislaus County had an average of 15.5 fatal accidents per 1,000 residents between 1998 and 2006.

Other traffic-related hazards include:

- The at-grade railroad crossings (for an analysis of safety issues associated with railroad crossings, the reader is referred to Chapter 5.12 Hazards and Hazardous Materials);
- The relatively high volume of using the central Plaza Street traffic circle;
- Truck traffic on East Las Palmas Avenue through the center of the City;

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The Circulation Diagram (Figure 5.6-14) provides recommended roadway improvements to serve all three Equal-Weight Alternatives which remedy existing intersection hazards and inefficiencies. For example:

- The intersection of M Street and First Street is proposed to be re-aligned to create a signalized intersection with improved geometry.
- Sperry Avenue is proposed to be extended to the east to provide a more efficient route for through traffic traveling between Interstate 5 and destinations to the east;
- The South County Corridor currently being reviewed by the County provides a more efficient connection between Interstate 5 and areas to the east which routes traffic around downtown Patterson;

In addition, the Draft Policy Document provides the following policies and implementation measures which are aimed at maintaining a safe and efficient circulation system.

- T-1.1 Street design.** Street design and access standards shall provide for safe and efficient movement of goods and people. Restrictive traffic control measures (such as channelization, street closures, and prohibition of some traffic movements) shall be used where appropriate to promote traffic safety and efficient traffic operation.
- T-1.2 Level of service standard.** The City shall endeavor to maintain a minimum Level of Service “D”, as defined by the 2000 Highway Capacity Manual or subsequent revisions, on all streets and intersections within the city. To identify the potential impacts of new development on traffic service levels, the City shall require the preparation of traffic impact analyses at the sole expense of the developer for developments determined to be large enough to have potentially significant traffic impacts. This standards does not apply to freeways which are governed by the standards established by Caltrans.
- T-1.5 Neighborhood streets.** Neighborhood streets shall be designed, where feasible, to discourage unsafe traffic speeds.
- T-1.6 South County Corridor.** The City shall promote efforts of Stanislaus County, StanCOG and other stakeholders in the development of the South County Corridor to connect E. Las Palmas Avenue to Interstate 5. The final alignment should be decided through a cooperative effort among stakeholders, and informed by a comprehensive feasibility study that assesses at least the following:
- The appropriate right-of-way width and location;
 - Environmental and regulatory constraints, especially as they relate to agricultural and biological resources;
 - The need for, and economic/environmental feasibility of, constructing a second bridge over the San Joaquin River;
 - An estimate of relevant costs; and
 - An analysis of alternatives;

- T-1.7 Sperry Avenue Corridor.** The City shall establish a roadway connection between Sperry Avenue and East Las Palmas to divert east-west through traffic from the downtown area.
- T-1.9 Truck access to avoid residential neighborhoods.** Industrial and commercial development shall be planned so that truck access through residential areas is avoided.
- T-1.10 Funding of traffic improvements.** The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.
- T-1.12 Traffic calming.** Traffic calming techniques, including roundabouts, traffic circles, 'chokers' and chicanes, shall be considered as an alternative to traditional intersection controls.
- T-1.13 New interchange.** The City shall investigate the construction of a new interchange at Interstate 5 north of Sperry Avenue in the vicinity of Zacharias Road.
- T-1.14 Protection of Neighborhoods.** The City shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.
- T-5.1 Regional coordination.** The City shall continue to participate in state, regional, and local transportation planning efforts to ensure coordination of the expansion and improvement of the region's transportation system.
- T-5.2 Communication among agencies.** The City shall continue to develop formal and informal lines of communication among adjacent jurisdictions to ensure cooperation in the development of transportation systems that cross jurisdictional boundaries.
- T-7.1 Safe pedestrian and bike pathways.** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its share of the costs for development of this pathway system.
- T-7.3 Bike routes.** The City shall establish a safe and convenient network of identified bicycle routes connecting new residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.
- T-7.4 Separation of bike routes from motor vehicles.** Bicycle routes shall emphasize paths separated from vehicle traffic (Class I) to the maximum extent possible, but shall also include bicycle lanes within public streets (Class II and III). The City shall limit on-street bicycle routes to those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.

- T-7.7 Bicycle-automobile conflicts.** The City shall promote the safe “sharing” of roads between automobiles and bicyclists.
- T-7.8 Bike safety.** Bicycle safety shall be considered when implementing improvements for automobile traffic operations.
- T-7.9 Coordination with schools.** The City shall collaborate with the School District to promote bike use and shall actively pursue Safe Route to School grants to fund programs that facilitate safe bike routes.
- T-7.10 Coordination with other agencies.** The City shall coordinate with Stanislaus County, the Stanislaus Council of Governments, Caltrans and other agencies to improve bicycle and pedestrian circulation region-wide.

Implementation Measures

- T-3** The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4** The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-8** The City shall develop and adopt a bicycle master plan with measurable objectives and incorporate this plan into a new trails master plan.
- T-9** The City shall amend the Downtown Physical Design Plan to incorporate a bicycle circulation and safety plan, including bike parking and safe routes through Downtown.
- T-13** The City shall work with StanCOG, Caltrans and other agencies to obtain funding for major traffic improvements that serve the region.
- T-14** The City shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.

In addition, roadway and intersection improvements recommended as mitigation for each of the Equal-Weight Alternatives as described under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6 will ensure roadways and intersections will operate at a safe and efficient level of service. However none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, the impacts are considered **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

None available.

Construction of Roadway and Intersection Improvements

Impact 5.6-15 The construction of roadway and intersection improvements necessary to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40 year buildout growth boundaries will require the extension of roads into previously un-served areas and the widening of roads and intersections serving the Study Area. This impact is considered potentially significant.

As described under impacts 5.6-1 through 5.6-7, roadway and intersection improvements will be needed to achieve and maintain an acceptable level of service on roadways and intersections serving the Study Area. Land within the Study Area is largely in agricultural use. Roadway improvements to serve expansion areas will require the construction of new or expanded roadways and intersections and bridges. Construction of road improvements would be subject to project-specific environmental review. Potential construction-related impacts include:

- Air quality: emissions associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources can be found in Section 5.10.
- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use. Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.
- Traffic: construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- Water quality: earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- Geology and Soils: construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9- Geology and Soils.

The roadway facilities to be constructed would be consistent with the City's existing street infrastructure. Accordingly, implementation of the additional street system would complement, rather than adversely impact, the City's existing street system.

The precise location of new roadways and intersections has not been identified at this time, but would generally reflect the Circulation Plan shown on Figure 5.6-14. These improvements are expected to be constructed in part on agricultural land within the Study Area that currently provides some measure of biological resource value. Impacts associated with the permanent loss of agricultural land are discussed under impact 5.11-1 of section 5.11 Agricultural Resources. Impacts associated with biological resources are discussed in Section 5.10 Biological Resources. Therefore the construction of road improvements is considered a **potentially significant impact**.

Mitigation Provided By Existing Regulations

Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Draft Policy Document Response

Policies

- AR-1.3** **CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- AQ-1.4** **Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AR-5.1** **Particulates from grading.** The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.
- NR-1.3** **Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- HS-2.9** **Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.

Implementation Measures

- AR-1 Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.
- AR-2 Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.
- HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.
- PS-6 New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City shall require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current

municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Recommended Additional Mitigation

Recommended mitigation AR-6 in section 5.7-Air Quality and Climate Change, and measure HS-10 in Section 5.10-Noise, require the following:

AR-6 The City shall require all of the following as a condition of project approval:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track-out (earth material deposited on City streets by construction equipment) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activity when winds exceed 20 mph; and

- Limit area subject to excavation, grading, and other construction activity at any one time. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

HS-10 The City shall require the following as a condition of project approval to mitigate the adverse noise effects of construction-related activities:

- Construction activities shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. on Saturday, with no construction on Sundays or federal and state holidays; minor construction equipment servicing and maintenance will be exempted from this restriction.
- During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
- Stationary noise sources and staging areas shall be located as far as is feasible from existing residences, or contractors shall be required to provide additional noise-reducing engine enclosures (with the goal of achieving approximately 10 dBA of reduction compared to uncontrolled engines).
- Air compressors and pneumatic equipment should be equipped with mufflers, and impact tools should be equipped with shrouds or shields.
- If for construction purposes, locating stationary construction equipment near existing residential uses is required, an eight-foot-tall sound rated fence should be erected between the equipment and the sensitive receptor. The fence should be located as close to the equipment as is feasible.
- Construction vehicle access routes shall be designed to minimize the impact on existing residences and occupied hospital facilities.
- A "construction liaison" shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Occupants and property owners of residences within 400 feet of construction activity shall be notified in writing of the construction schedule and the contact information for the construction liaison.
- A qualified acoustical engineer should be retained during the construction phase of the project to determine if the noise levels generated from construction equipment at the project site to adjacent property lines are within the standards.

Lastly, continued compliance with relevant provisions of the Clean Water Act regarding the protection of surface and groundwater quality will ensure impacts to water quality associated with development accommodated by any of the Equal-Weight alternatives will be less than significant. Specifically:

- Compliance with the City's Small MS4 General Permit Best Management Practices before, during and after construction; Such BMPs include:
 - Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
 - Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
 - Providing a central location for concrete washout and performing routine maintenance.
 - Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
 - Covering and/or containing stockpiled materials and overall good housekeeping on the site.

- For projects disturbing more than one acre of land during construction continuing to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. Under the provisions of the City's General Permit, a developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of roadway infrastructure. In addition, the construction of roadway facilities will be subject to project-specific environmental review.

The City shall implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of roadways. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new road improvements will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting for transportation related impacts includes the City of Patterson, including previously-approved development within the City, and development associated with the General Plans of surrounding jurisdictions that are included in the StanCOG regional traffic model. Such plans include the following:

Stanislaus County (including the Diablo Grande project)
City of Modesto
City of Hughson
City of Oakdale
City of Waterford

City of Turlock
City of Ceres
City of Newman
City of Riverbank

In addition, for cumulative impacts the traffic analysis provided for this EIR included development associated with the Westpark project currently under consideration by Stanislaus County for the Crows Landing Airfield.

Cumulative Impacts

Cumulative Impact to City Streets and Intersections

Impact 5.6-16 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development will result in a cumulative increase in traffic that would adversely impact the existing LOS for city

roadways through the year 2050. This impact is considered cumulatively considerable.

The analysis of traffic related impacts discussed under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6 includes the cumulative growth in background traffic, plus traffic associated with each of the Equal-Weight Alternatives, plus traffic associated with the Westpark project. Accordingly, the analysis is cumulative through the year 2050. According to the preceding analysis, the Circulation Diagram, Draft Policy Document together with the recommended mitigation measures for project-related impacts will mitigate cumulative traffic-related impacts to City streets and intersections.

However, as discussed under impacts 5.6-1, 5.6-3, and 5.6-5, although the City has adopted a development impact fee ordinance and has included the partial cost of recommended improvements in currently-collected fees on new development, none of the improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, these impacts are considered **significant and unavoidable**.

Additional Mitigation

None available.

Cumulative Impact to Streets and Intersections under the Control of Other Agencies

Impact 5.6-17 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development through 2050 will result in a cumulative increase in traffic that would adversely impact the existing LOS for roadway segments located in adjacent jurisdictions that do not meet the jurisdiction's minimum acceptable level of service threshold.

As discussed under impact 5.6-8, development accommodated by each of the Equal-Weight Alternatives will result in adverse impacts to streets and intersections under the jurisdiction of Stanislaus County. Although the Circulation Diagram, draft Policy Document and recommended mitigation measures, when implemented, will reduce potential traffic-related impacts and achieve the County's adopted level of service, implementation of the recommended improvements is outside of the control of the City of Patterson. Therefore these improvements cannot be guaranteed and potential impacts to roadways and intersections under the County's jurisdiction will remain **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

No additional feasible mitigation is available.

Cumulative Impacts to Interstate 5

Impact 5.6-18 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development could result in a cumulative increase in traffic that could exceed the LOS along some segments of Interstate 5 through 2050. This impact is considered cumulatively considerable.

As discussed under impact 5.6-9, development accommodated by each of the Equal-Weight Alternatives will result in adverse impacts to Interstate 5 to the north and south of the City. As with roadways and intersections under the jurisdiction of the County, implementation of the recommended improvements is outside of the control of the City of Patterson. Therefore these improvements cannot be guaranteed and potential impacts to Interstate 5 will remain cumulatively considerable and significant and unavoidable.

Additional Mitigation

No additional feasible mitigation are available.

Cumulative Impacts to Transit, Bicycle and Pedestrian Services

Impact 5.6-19 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development under cumulative conditions could adversely affect transit, bicycle and pedestrian facilities through 2050. This impact is considered cumulatively considerable.

As discussed under impacts 5.6-10, 5.6-11 and 5.6-12, development accommodated by each of the Equal-Weight Alternatives will result in a significant increase in the City's population, which taken together with the expected growth in regional population, employment and shopping, will result in a region-wide increase in the demand for transit, bicycle and pedestrian facilities. The policies and implementation measures recommended by the draft Policy Document and as described under impacts 5.6-10, 5.6-11 and 5.6-12 will reduce potential impacts. However, because some of the improvements are dependent upon funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing. Therefore, the impacts are significant and unavoidable.

Additional Mitigation

None available.

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5.7 AIR QUALITY AND CLIMATE CHANGE

Introduction

This section assesses the potential impacts of the equal-Weight Alternatives to air quality and climate change, and identifies mitigation measures to minimize these impacts to the extent feasible. There are two appendices, 5.7A URBEMIS 2007 Air Quality Analysis and 5.7B Climate Change Summary Report

Setting

General Climate and Meteorology

The city of Patterson lies within the San Joaquin Valley Air Basin (SJVAB), which is bounded by the coastal mountain ranges on the west and the Sierra Nevada range on the east. The Carquinez Strait is a sea level gap in the coastal range: the strait lies approximately 70 miles northwest of the Study Area, and the intervening terrain is flat. The prevailing wind direction in the Study Area is from the northwest, owing to marine breezes through the Carquinez Strait. During winter the sea breeze diminishes. Table 5.7-1 presents climatological data for Stanislaus County.

Table 5.7-1: Historical Climate Data 1931-2006 - Modesto Monitoring Station

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temp. (F)	53.8	60.9	66.9	73.3	81.1	88.2	94.2	92.1	87.7	77.9	64.4	54.3	74.6
Average Min. Temp. (F)	37.8	40.9	43.5	46.9	51.8	56.5	60.0	58.8	56.0	49.7	41.8	37.8	48.4
Average Precipitation (in.)	2.38	2.12	1.95	1.09	0.48	0.09	0.03	0.04	0.20	0.63	1.34	2.12	12.46

Source: National Weather Service

Air Pollutants and Air Quality Standards

Air pollution is hazardous to health, diminishes the production and quality of many agricultural crops, reduces visibility, degrades or soils materials, and damages native vegetation. State and national ambient air quality standards were created to protect the public health and welfare, and to minimize the other effects mentioned above. The standards address pollutants in the ambient air, the air that people breathe outside of buildings, as they go about their daily activities.

National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are standards that define the upper limits for ambient airborne concentrations of pollutants. The standards are designed to protect all aspects of the public health and welfare, with a reasonable margin of safety. At the national level, the federal Clean Air Act requires the U.S. Environmental Protection Agency (U.S. EPA) to establish NAAQS and designate geographic areas that are either attaining or violating the standards. In California, the task of air quality management and developing air quality regulations has been legislatively granted to the California Air Resources Board (CARB) and local air quality management districts. The CARB establishes CAAQS and designates the attainment status of each area in the state with the standards. The San Joaquin Valley Air Pollution Control District (District) coordinates the efforts to comply with these standards.

The NAAQS and CAAQS are established for “criteria pollutants.” These are ozone, respirable particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur

dioxide (SO₂), and lead. Ozone is an example of a secondary pollutant that is not emitted directly from a source (e.g., an automobile tailpipe). It is formed in the atmosphere by chemical and photochemical reactions. Reactive organic gases (ROGs), including volatile organic compounds (VOCs), and nitrogen oxides (NO_x), are monitored and regulated because they are precursors to ozone formation. Table 5.7-2: State and Federal Ambient Air Quality Standards identifies the ambient national and state air quality standards.

Toxic air contaminants (TACs) are a category of air pollutants regulated separately from criteria pollutants. The TACs are suspected or known to cause cancer, birth defects, neurological damage, or death. There are no established ambient air quality standards for TACs. Instead they are managed on a case-by-case basis depending on the quantity and type of emissions and proximity to potential receptors. Their effects tend to be localized and directly attributable to certain sources.

The CARB is responsible for oversight of air quality management in the state. CARB's responsibilities include establishing emissions standards and regulations for certain mobile sources (e.g., autos, light-duty trucks) and overseeing the efforts of local air quality management districts. The District is responsible for demonstrating that attainment of the ambient air quality standards is either achieved or will be achieved through proper regional planning in the SJVAB. The District directly regulates stationary emission sources through its permit authority and indirectly manages emissions from mobile sources through coordination with regional municipalities and transportation planning agencies.

Table 5.7-2: State and Federal Ambient Air Quality Standards					
Pollutant	Averaging Time	California Standards ¹		Federal Standards ²	
		Concentration	Method	Concentration	Method
Ozone (O ₃)	1 Hour	0.09 ppm	Ultraviolet Photometry	–	Ultraviolet Photometry
	8 Hour	0.07 ppm		0.08 ppm	
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Inertial Separation and Gravimetric Analysis
	Annual Mean	20 µg/m ³		–	
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		35 µg/m ³	Inertial Separation and Gravimetric Analysis
	Annual Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³	
Carbon Monoxide (CO)	8 Hour	9.0 ppm	Non-Dispersive Infrared Photometry	9 ppm	Non-Dispersive Infrared Photometry
	1 Hour	20 ppm		35 ppm	
Nitrogen Dioxide (NO ₂)	Annual Mean	–	Gas Phase Chemiluminescence	0.053 ppm	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm		–	
Sulfur Dioxide (SO ₂)	Annual Mean	–	Ultraviolet Fluorescence	0.03 ppm	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm		0.14 ppm	
	3 Hour	–		–	
	1 Hour	0.25 ppm		–	

Source: CARB Ambient Air Quality Standards Table, Accessed 5/23/07.

Notes:

1. See <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>

2. See <http://epa.gov/air/criteria.html>

Table 5.7-3 Attainment Status of the SJVAB By Criteria Pollutant

Pollutant Soil type	Designation/Classification	
	Federal Standards ¹	State Standards ²
Ozone - One hour	No Federal Standard ⁶	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Serious ⁵	Nonattainment
PM 10	Attainment ³	Nonattainment
PM 2.5	Nonattainment ⁴	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment
Ozone - One hour	No Federal Standard ⁶	Nonattainment/Severe
Source: San Joaquin Valley Unified Air Pollution Control District, 2010		
Notes		
1. See 40 CFR Part 81 2. See CCR Title 17 Sections 60200-60210 3. On September 25, 2008, EPA re-designated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan. 4. The Valley is designated nonattainment for the 1997 federal PM2.5 standards. EPA released final designations for the 2006 PM2.5 standards in December 2008 (effective in 2009), designating the Valley as nonattainment for the 2006 PM2.5 standards. 5. On April 30, 2007 the Governing Board of the San Joaquin Valley Air Pollution Control District voted to request EPA to reclassify the San Joaquin Valley Air Basin as extreme nonattainment for the federal 8-hour ozone standards. The California Air Resources Board, on June 14, 2007, approved this request. This request must be forwarded to EPA by the California Air Resources Board and would become effective upon EPA final rulemaking after a notice and comment process; it is not yet in effect. 6. Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked in the federal 1-hour ozone standard, including associated designations and classifications. However, EPA had previously classified the SJVAB as extreme nonattainment for this standard. Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.		

Pollutants of Concern in the San Joaquin Valley Air Basin

In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere. Air pollution in the Valley results from emissions generated in the Valley as well as from emissions and secondary pollutants transported into the Valley. It is thought that the bulk of the Valley's summer and winter air pollution is caused by locally generated emissions. Due to the Valley's meteorology, topography, and the chemical composition of the air pollutants, NO_x is the primary culprit in the formation of both ozone and PM2.5.

Ozone. Ozone (O₃) and particulate matter are the two pollutants that are responsible for the bulk of the Valley's air quality problems. Ozone is the major component of the Valley's summertime "smog," and it affects human health and vegetation. Ozone is not emitted directly into the air, but is created by a series of chemical reactions between reactive organic gases (ROGs) and oxides of nitrogen (NO_x) that take place in the presence of sunlight. ROG and NO_x are emitted from fuel combustion, agricultural processes, and industrial processes that are widespread throughout the Valley as well as from natural sources. Studies have also linked urban areas with both higher regional temperatures and higher ozone levels (a phenomenon known as the "urban heat island effect").

High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber, paint, and plastics.

Reactive Organic Gases. Reactive organic gases (ROGs), also known as volatile organic compounds (VOCs), are photochemically reactive hydrocarbons that are important for ozone formation. The primary sources of ROG are petroleum transfer and storage, oil and gas production, mobile sources, organic solvent use, farming operations, and miscellaneous processes. No separate health standards exist for ROG as a group. Because some compounds that make up ROG are also toxic, like the carcinogen benzene, they are often evaluated as part of a toxic risk assessment.

Oxides of Nitrogen. Oxides of Nitrogen (NO_x) are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_x, nitrogen dioxide (NO₂), is a reddish-brown gas that is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant.

Particulate Matter. Particulate matter (PM) is any material except pure water that exists in the solid or liquid state in the atmosphere. Suspended particulate matter (airborne dust) consists of particles small enough to remain suspended in the air for long periods. Respirable particulate matter consists of particles small enough to be inhaled, pass through the respiratory system, and lodge in the lungs with resultant health effects. Respirable particulate matter includes "inhalable coarse particles," with diameters larger than 2.5 micrometers and smaller than 10 micrometers (PM₁₀), and "fine particles," with diameters that are 2.5 micrometers and smaller (PM_{2.5}).

PM₁₀ and PM_{2.5} are primary pollutants (emitted directly to the atmosphere) and secondary pollutants (formed in the atmosphere by chemical reactions among precursors. Generally speaking, PM_{2.5} sources tend to be combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM₁₀ sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust in the Valley.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air (unlike ozone). The main source of CO in the San Joaquin Valley is on-road motor vehicles. Other CO sources in the Valley include other mobile sources, miscellaneous processes, and fuel combustion from stationary sources.

Because of the local nature of CO problems, the ARB and EPA designate urban areas as CO nonattainment areas instead of the entire basin as with ozone and PM10. Motor vehicles are by far the largest source of CO emissions. Emissions from motor vehicles have been declining since 1985, despite increases in vehicle miles traveled (VMT), with the introduction of new automotive emission controls and fleet turnover.

Sulfur Dioxide. Sulfur Dioxide (SO₂) is a colorless, irritating gas with a "rotten egg" smell formed primarily by the combustion of sulfur-containing fossil fuels. The SJVAB is in attainment of both the federal and California standards. However, like airborne NO_x, suspended SO_x particles contribute to the poor visibility that sometimes occurs in the Valley. These SO_x particles are also a component of PM10. The prevalence of low-sulfur fuel use in Valley has minimized problems from this pollutant.

Lead. Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage; it can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract.

Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of Pb have dropped dramatically. Lead concentrations were last systematically measured in the SJVAB in 1989, when the average concentrations were approximately five percent of the state lead standard. Though monitoring was discontinued in 1990, lead levels are probably well below applicable standards, and the SJVAB is designated in attainment for lead.

Greenhouse Gases

The phenomenon known as the greenhouse effect keeps the earth's atmosphere near the surface warmer than it would be otherwise, allowing for successful habitation by humans and other forms of life. GHGs present in the earth's lower atmosphere play a critical role in maintaining the earth's temperature by trapping some of the longwave infrared radiation emitted from the earth's surface which otherwise would have escaped to space.

There are no "attainment" concentration standards established by the federal or state government for greenhouse gases. In fact, GHGs are not generally thought of as traditional air pollutants because greenhouse gases, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere.

The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature rise between the years 2000 and 2100 could range from 1.1°C, with no increase in GHG emissions above year 2000 levels, to 6.4°C, with substantial increase in GHG emissions¹. Large increases in global temperatures could have deleterious impacts on natural and human environments.

To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas, CO₂. The most commonly accepted method to compare GHG emissions is the global

¹ IPCC, 2007, Climate Change 2007: Synthesis Report, Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A.(eds.)], IPCC, Geneva, Switzerland.

warming potential (GWP). The IPCC² defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO₂e), which compares the gas in question to that of the same mass of CO₂. CO₂ has a GWP of 1 by definition. Generally, GHG emissions are quantified in terms of metric tons of CO₂ emitted per year.

Common GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), and chlorofluorocarbons (CFCs). Some greenhouse gases occur naturally and are emitted to the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are CO₂, CH₄, N₂O, and fluorinated carbons.

- Carbon Dioxide – CO₂ enters the atmosphere through the burning of fossil fuels, solid waste, trees and wood products. CO₂ is also as a result of other chemical reactions (e.g., certain manufacturing processes). CO₂ is removed from the atmosphere through the photosynthesis process (the process in which plants absorb and convert CO₂ into energy).
- Methane – CH₄ is emitted during the production and transport of coal, natural gas, and oil. CH₄ is also the natural result of the ruminant digestive processes in livestock and other agricultural practices and by the decay of organic waste.
- Nitrous Oxide – N₂O is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- Fluorinated Gases – Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride are synthetic gases that are emitted from a variety of industrial processes. These gases are typically emitted in smaller quantities, but because of their potency, they are sometimes referred to as High Global Warming Potential gases (High GWP gases).

City of Patterson 2009 Baseline Greenhouse Gas Emissions Inventory

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale, such as for global and national entities, or on a small scale, such as for a particular building or person. GHG emission and sink specifications are complicated by the fact that natural processes dominate the carbon cycle. Though some emission sources and processes are easily characterized and well understood, components of the way in which GHGs operate are not known with accuracy. As such, GHG protocols are currently under development and ad-hoc tools must be developed to quantify emissions from certain sources and sinks.

Greenhouse gas emissions inventories for cities are commonly restricted to energy, transportation, and waste generation because of a lack of methodology or reliable data to quantify other sources of emissions. The 2006 IPCC Guidelines for National Greenhouse Gas Inventories³ addresses the following four categories of emissions:

- Energy (including electricity, natural gas and fuel for motor vehicles)
- Industrial Processes and Use
- Agriculture, Forestry and Other Land Use
- Waste

² IPCC, 2007, Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

³ Intergovernmental Panel on Climate Change, 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Table 5.7-4 provides a summary of the City's 2009 baseline greenhouse gas emission inventory by sector. For purposes of this baseline inventory, emissions in 2009 are assumed to be equivalent to those in 2005 for the City of Patterson because development in the City from 2005 to 2009 was at a virtual standstill as a result of the global recession. In calendar year 2009, activities within the incorporated limits of the City of Patterson emitted about 287,003 metric tons of carbon dioxide equivalent (CO₂e)⁴ into the atmosphere. The purpose of providing this inventory is to create a baseline against which future changes in emissions can be compared.

The baseline inventory includes the following major sources of greenhouse gas emissions:

- Vehicle trips with origins and destinations within the city, based on vehicle miles traveled (VMT);
- Residential natural gas and electricity consumption, based on average county consumption rates established in the Energy Consumption Data Management System (ECDMS)⁵;
- Commercial natural gas and electricity consumption, based on average state- and nationwide consumption rates for nonresidential uses⁶;
- Waste produced within the city and sent to landfill, based on disposal rates provided by CalRecycle and EPA's WARM model;
- Annual construction activities;

As discussed above, the inventory is restricted to energy, transportation, and waste analysis due to a lack of methodology or lack of reliable data (or both) to quantify the emissions from other sources. Accordingly, emissions from the following sources are excluded:

Off-road vehicle emissions
Propane emissions
Refrigerant emissions
Aircraft emissions
Sewage treatment emissions

A precise estimate of construction-related emissions associated with buildout of Equal-Weight Alternatives is not feasible because:

- The precise number, size, location, and size of buildings associated with each alternative is unknown in 2010;
- The amount of construction likely to occur in a given year will vary as function of economic forces and other factors;
- The periods of construction, the types of construction equipment to be employed and the area under which construction will occur is unknown;
- Emission factors for motor vehicles and construction equipment that may be used in the future are unknown;

⁴ Carbon dioxide equivalent is a metric used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP) and is a way to equalize the different GWPs of the six internationally recognized greenhouse gases. For instance, methane (CH₄) has 21 times the GWP of carbon dioxide (CO₂), therefore 21 metric tons CO₂e could be 21 metric tons of carbon dioxide or 1 metric ton of methane.

⁵ California Energy Commission 2008

⁶ U.S. Energy Information Administration EIA 2005

However an estimate of annual CO₂ emissions associated with construction activities was prepared using the URBEMIS 2007 9.2.4 from the California Air Resources Board based on the following assumptions:

- A one year construction period;
- A total of 400 dwelling units constructed;
- 40 acres of commercial development;
- 50 acres of light industrial development;
- 10 acres of public/educational uses developed;

Using these assumptions, construction emissions would amount to about 491 metric tons of CO₂ per year.

As inventory protocol and methodologies advance, these sources can be incorporated into the baseline inventory. The current emissions sources are believed to comprise the vast majority of community-wide emissions. For compliance with the California Environmental Quality Act and Attorney General guidance, the baseline year for this inventory is 2009.

The methodologies and assumptions used to prepare the inventory are provided in Appendix 5.7B and summarized in tables 5.7-6 and 5.7-7. Table 5.7-6 quantifies the sources of greenhouse emissions in Patterson, along with the assumptions used to derive the baseline totals for 2009. Table 5.7-7 provides a summary of the resulting emissions of carbon dioxide equivalent associated with these sources, and the assumptions applied to derive these totals.

Table 5.7-4: Baseline Community-Wide Greenhouse Gas Emissions by Sector, 2009		
2009 Baseline Greenhouse Gas Emissions	Metric Tons CO ₂ e	Percent of Total
Residential	34,696	12.07%
Commercial/Industrial	69,616	24.21%
Transportation	179,885	62.57%
Waste	2,807	0.98%
Construction	491	0.17%
Total	287,494	100.0%
Source: PMC, 2010 URBEMIS 2007 v. 9.2.4		
Notes:		
1. Due to rounding, percentages and totals may result in different sums than those depicted.		

As shown above in Table 5.7-4, the transportation sector is responsible for the majority of emissions released within the Patterson community (62.7 percent). Electricity and natural gas consumption in the residential and commercial/industrial sector constitute the second largest sector (36.4 percent), leaving waste as the smallest sector (1 percent). Table 5.7-5 provides a more detailed summary of the baseline inventory by source.

Table 5.7-5: Baseline Community-Wide Greenhouse Gas Emissions By Source, 2009				
Sector	Emission Source	Quantity	Greenhouse Gas Emissions (CO ₂ e metric tons/year)	Percent of Total
Residential	Electricity consumption	63,421,471 kWh	19,749	12.1%
	Natural gas consumption	2,237,529 therms	14,947	
	Subtotal		34,696	
Commercial/ Industrial	Electricity consumption	138,259,914 kWh	43,053	24.3%
	Natural gas consumption	3,976,557 therms	26,563	
	Subtotal		69,616	
Transportation	Vehicle miles traveled (all vehicles and fuel types)	343,164,360 VMT	179,885	62.7%
Solid Waste	Waste landfilled and alternative daily cover (ADC)	7,920 tons	2,807	0.98%
Construction	Construction equipment, paving, coating, construction vehicle trips	400 dwelling units 40 acres commercial 50 acres industrial 10 acres of public/educational	491	0.17%
Total			287,494	100%
Source: PMC, 2010 URBEMIS 2007 v.9.2.4 Notes: 1. The reader is referred to Appendix 5.7B for a more detailed description of methodology and assumptions used to derive these data. 2. Due to rounding, percentages and totals may result in different sums than those depicted.				

Table 5.7-6: 2009 Baseline Sources of Greenhouse Gas Emissions In Patterson

Sector	Emission Source	Quantity For Baseline Year 2009	Methodology And Assumptions
Residential	Electricity Consumption	63,421,471 kWh ¹	- Utilizes most current countywide California Energy Commission, Energy Consumption Data Management System (ECDS) energy consumption totals for the year 2007 to determine a ratio of energy consumed per household. - Assumes uniform rate of consumption across the county for both electricity and natural gas. Determines average household energy consumption through the ratio of households in the county to total countywide energy consumption by type (natural gas or electricity). Ratio of average household energy consumption is applied to households in the city. Ratio of energy consumption is based on 2007 household and consumption figures (the most recent year for which ECDMS data are available).
	Natural Gas Consumption	2,237,529 therms ²	
Commercial/ Industrial	Electricity Consumption	138,259,914 kWh	- Applies Energy Information Administration (EIA) energy consumption averages for kWhs of electricity by square foot of land use from 2005 (the most recent year for which data are available). Average consists of the average of West and All US consumption rates when both available by land use, or All US consumption rates when West rates unavailable. Assumes higher accuracy results for electricity consumption from these census regions, based on a comparison of EIA residential consumption averages to ECDMS consumption averages for Stanislaus County. - Applies EIA (energy consumption averages for cubic feet of natural gas by square foot of land use from 2005 (the most recent year for which data is available). Utilizes consumption for West Pacific (C29) when available, and All US consumption rates for all other scenarios. Assumes higher accuracy results for natural gas consumption from these census regions, based on a comparison of EIA residential consumption averages to ECDMS consumption averages for Stanislaus County. - Assumes that energy consumption rates remain constant. - For EIA averages, per EIA definitions, utilizes Retail (Other Than Mall) consumption averages for commercial floor area, other consumption averages for industrial floor area, and Service consumption averages for services floor area. - Square footages by land use from CMCA, 2010. - Conversion from cubic feet natural gas into BTUs from U.S. EIA based on U.S. consumption in 2008.
	Natural Gas Consumption	3,976,557 therms	

Table 5.7-6: 2009 Baseline Sources of Greenhouse Gas Emissions In Patterson

Sector	Emission Source	Quantity For Baseline Year 2009	Methodology And Assumptions
Transportation	Vehicle Miles Traveled (All Vehicle Types and All Fuel Types)	343,164,360 vehicle miles	- Daily VMT provided by TJKM Transportation Consultants. Using the City of Patterson model (based on Stanislaus Council of Governments model), Select Zone assignment was performed for all zones in Patterson to ensure that the VMT was calculated by all trips generated by traffic analysis zones in Patterson. Once the trips were assigned to the overall network, VMT was calculated for each link by multiplying the link volume with the distance. Added VMT on a link-by-link basis to determine the overall VMT. - Daily VMT converted into annual VMT by multiplying by 330 days. Accounts for decreased traffic on weekends and holidays.
Solid Waste	Waste Sent to Lands	7,920 tons	- Only calculates emissions from disposal tons and ADC. Excludes transformed and export tons. - Utilizes waste totals from CalRecycle waste tonnage by origin. - To determine 2009 countywide waste totals: calculates compound average growth rate (CAGR) from 2003–2008. Growth rate applied to amounts of waste disposed in 2008 to determine waste disposed in 2009. - Calculates waste for Patterson based on total waste originated in Stanislaus County Regional Solid Waste Planning Agency. SCRSWPA includes the population of the county and all jurisdictions except Modesto. Calculates a countywide per person rate of waste disposed in 2009 and applies rate to 2009 population of Patterson.
Construction	Construction equipment, grading, paving, coating, construction vehicle trips	491 metric tons CO ₂	Assumes annual construction of 400 dwelling units, 40 acres commercial, 50 acres industrial, 10 acres of public/educational.
Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report Notes: - Kilowatt hours. a unit of energy equal to 1000 watt hours or 3.6 megajoules. - One therm is equal to 100,000 British thermal units (BTU). It is approximately the energy equivalent of burning 100 cubic feet (often referred to as 1 Ccf) of natural gas.			

Table 5.7-7: 2009 Baseline Greenhouse Gas Emissions In Patterson

Sector	Emission Source	Metric Tons Carbon Dioxide Equivalent For Baseline Year 2009	Methodology And Assumptions
Residential	Electricity Consumption	19,749	- CO₂ emission factor from Local Government Operations Protocol v. 1.0, Table G.5: CO₂ lbs/kWh for Turlock Irrigation District in 2006.⁶³ - CH₄ and N₂O emission factors from California Climate Action Registry Reporting Protocol (January 2009), Table C.2: lbs/mwh for eGRID region CAMX WECC California. - Population and household figures from Department of Finance and Crawford Multari & Clarke (CMCA). - Electricity and natural gas use numbers are multiplied by emissions factors for carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) to determine GHG emissions. - Total MTCO₂e determined by multiplying totals for CO₂, CH₄, and N₂O by their respective Global Warming Potentials.
	Natural Gas Consumption	14,947	
	Sub-Total:	34,696	
Commercial/Industrial	Electricity Consumption	43,053	
	Natural Gas Consumption	26,563	
	Sub-Total:	69,616	
Transportation	Vehicle Miles Traveled (All Vehicle Types and All Fuel Types)	179,885	- Emissions factors by vehicle class for CO₂ and CH₄ from countywide emissions provided by EMFAC 2007. Assumes emissions from average speed of 45 MPH, since VMT is not differentiated by speed or type. - Emissions factors by vehicle class for N₂O from the Local Government Operations Protocol (2008), average of all model years. - Assumes annual average temperature and humidity of Patterson: 63 degrees Fahrenheit and 60% humidity. - Vehicle classification and proportion of VMT per vehicle class from EMFAC 2007. Proportion of VMT per vehicles class as follows: light-duty autos: 40.8% of VMT;
Solid Waste	Waste Sent to Lands	2,807	Waste type data not collected by landfill. Assumes that waste breakdown is proportional to 2008 CalRecycle Waste Characterization Study, which captures the state average of waste characterization. From Composition

Table 5.7-7: 2009 Baseline Greenhouse Gas Emissions In Patterson

Sector	Emission Source	Metric Tons Carbon Dioxide Equivalent For Baseline Year 2009	Methodology And Assumptions
			of California's Overall Disposed Waste Stream by Material Type for landfill tonnage provided by CalRecycle 2008 Statewide Waste Characterization Study. 2. Waste types are cross-referenced with input groups for EPA's WARM model and entered into WARM groups for yearly waste emissions outputs.
Construction	Construction equipment, grading, paving, coating, construction vehicle trips	491	1. URBEMIS 2007 v.9.2.4. Assumes annual construction of 400 dwelling units, 40 acres commercial, 50 acres industrial, 10 acres of public/educational.
Total:		287,494	
Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report URBEMIS 2007 v.9.2.4 Notes: 1. Metric tone carbon dioxide equivalent per year.			

Sensitive Receptors

Sensitive receptors are people or other organisms that may have a significantly increased sensitivity or exposure to air pollution by virtue of their age and health (e.g. schools, day care centers, hospitals, nursing homes), status (e.g. sensitive or endangered species), or proximity to the source. In the Study Area, sensitive receptors include public and private schools, day care facilities and nursing homes as shown on Figure 5.7-1. There are currently no hospitals in the Study Area.

Toxic Air Contaminants

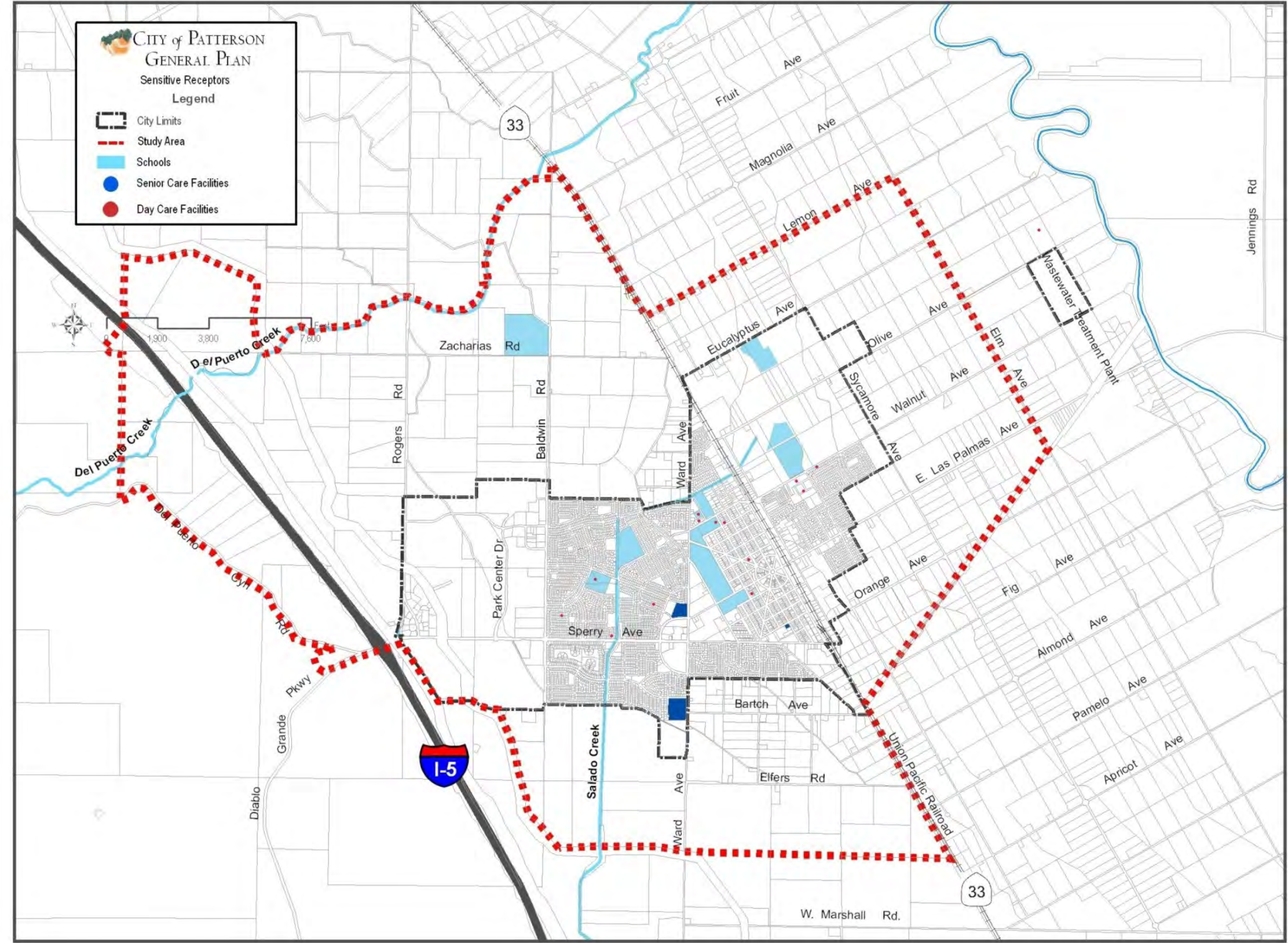
Toxic Air Contaminants (TACs) are managed through a combination of source identification, risk characterization, control requirements, and avoidance of land use conflicts. All stationary sources of TACs are subject to the District's permitting requirements, which include an evaluation of potential TAC emissions and risks to nearby receptors. Stationary sources are screened for their potential to cause health risks using a facility prioritization score. The District does not require detailed assessments of facilities with prioritization scores below 1, because their emissions would not be likely to result in potential health risks. For new sensitive land uses (including residential areas and schools), it is the responsibility of the city or county to identify whether the new land uses would be located near existing sources of TACs. Management of the public's exposure to odors is also generally accomplished by avoiding land use conflicts with appropriate distance controls.

In 1998, CARB identified diesel engine particulate matter as a TAC. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment are the largest source of diesel emissions. CARB estimates that 70 percent of the known statewide cancer risk from outdoor air toxics is attributable to diesel particulate matter. Approximately 24 percent is attributed to on-road diesel-fueled vehicles. CARB recommends avoiding siting new sensitive land uses within 500 feet of freeways with 100,000 vehicles per day. The State Highway 33 peak hourly traffic rate is 790 vehicles per hour. Particulates from diesel exhaust are managed through vehicle emission control programs implemented on a state and federal level with the cooperation of fuel suppliers and vehicle and engine manufacturers. In September 2000, the Air Resources Board (ARB) approved a comprehensive Diesel Risk Reduction Plan (Plan) to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the Plan is to reduce diesel PM emissions and the associated health risk by 75 percent in 2010 and 85 percent by 2020, through cleaner fuels, such as ultra-low sulfur diesel, new diesel tailpipe regulations, and regulations governing operations such as idling restrictions.

On June 30, 2005, the CARB entered into a pollution reduction agreement with Union Pacific Railroad (UP) and BNSF Railway (BNSF). The railroads have committed to studying and reducing pollution risks from diesel emissions. The railroads have also agreed to the following:

- Phaseout non-essential idling within six months, and install idling reduction devices on California-based locomotives within 3 years.
- Identify and expeditiously repair locomotives with excessive smoke and ensure that at least 99 percent of the locomotives operating in California pass smoke inspections.
- Maximize the use of ultra low sulfur (15 parts per million) diesel fuel by January 1, 2007, six years before such fuel is required by regulation.
- Conduct health risk assessments for 17 major rail yards and use these studies to identify risk reduction measures.

Figure 5.7-1 Potential Sensitive Receptors in Patterson, 2010



Local Air Quality

In contrast to other air basins in California, the air quality in the San Joaquin Valley Air Basin (SJVAB) is not dominated by a single large urban source, but by a number of moderately sized urban areas spread along the valley's main axis. While only 10 percent of California's population lives in the San Joaquin Valley, pollution sources in the region account for about 14 percent of the total statewide criteria pollutant emissions. With the exception of PM10, emission levels in the SJVAB have been decreasing since 1990. This is primarily due to improved controls on motor vehicle emissions, which are the primary source of CO and NOx. A large source of ROG in the region comes from the oil and gas production in the lower San Joaquin Valley. Particulate matter emissions are primarily from road dust, agricultural operation, residential fuel combustion, and waste burning.

The District's *Annual Report to the Community, October 2008* provides a brief discussion of sources of air pollution and identifies the top sources of emissions in the SJVAB which are listed in Table 5.7-8, below. Throughout the SJVAB, agricultural operations and mobile sources account for the majority of ozone precursor and PM10 emissions. The majority of PM10 emissions in the San Joaquin Valley are attributed to farming operations and airborne dust from paved and unpaved roads. Managing growth in emissions from agricultural operations and emissions from all types of motor vehicle activity is an important component of the regional air quality attainment strategy. Industry and other stationary sources make up the remainder of the human-generated emissions in the SJVAB.

Table 5.7-8: Top 10 Sources Criteria Pollutant Emissions

Oxides of Nitrogen	Volatile Organic Compounds	PM2.5
Heavy Heavy-Duty Diesel Trucks	Farming Operations	Managed Burning and Disposal
Off-Road Equipment	Oil and Gas Production	Residential Fuel Combustion
Farm Equipment	Consumer Products	Farming Operations
Trains	Pesticides/Fertilizers	Heavy Heavy-Duty Diesel Trucks
Medium Heavy Duty Diesel Trucks	Light Duty Passenger Vehicles	Fugitive Windblown Dust
Light Duty Passenger Vehicles	Heavy Heavy-Duty Diesel Trucks	Paved Road Dust
Light Duty Trucks – LDT2	Off-Road Equipment	Unpaved Road Dust
Food and Agricultural Processing	Recreational Boats	Cooking
Oil and Gas Production	Light Duty Trucks – LDT2	Off-Road Equipment
Medium Duty Trucks	Food and Agriculture	Chemical Industrial Processes

Source: San Joaquin Valley Unified Air Pollution Control District, Annual Report to the Community, October 2008

The CARB and the District continually monitor the ambient concentrations of criteria pollutants including ozone, inhalable particulate matter (PM10), fine particulate matter (PM2.5), and carbon monoxide. The station nearest the Study Area is located approximately seven miles to the southeast on 14th Street in downtown Modesto. Table 5.7-9 provides a summary of data collected between 2003 and 2008.

Table 5.7-9: Ambient Air Quality Data, Modesto 14th Street Monitoring Station

Ozone						
Year	Days Over State 1-hr Std.	Days Over Natnl. 1-hr Std.	Days Over State 8-hr Std.	Days Over Natnl. 8-hr Std. ('08 Std)	Max. 1-hr Observations (ppm)	Max. 8-hr Ave. (ppm)
2003	9	0	31	13	0.110	0.091
2004	2	0	14	7	0.104	0.085
2005	15	0	33	17	0.115	0.095
2006	14	0	30	19	0.120	0.098
2007	1	0	190	4	0.10	0.081
2008	10	1	24	18	0.127	0.107
2009	1	—	14	7	0.112	0.098
PM _{2.5}						
Year	Est. Days Over Natnl. Std.		Max. 24-hr Ave. (µg/m³)			
2003	20.9		66.9			
2004	27.3		67.3			
2005	26.8		89.2			
2006	26.8		72.8			
2007	49.1		75.1			
2008	39.4		107.2			
2009	31		113.0			
PM ₁₀						
Year	Est. Days Over Natnl. 24-hr Std.		Max. Natnl. 24-hr Ave. (µg/m³)	Est. Days Over State 24-hr Std.	Max. 24-hr Ave. (µg/m³)	
2003	0		70.0	26.2	71	
2004	0		80.0	35.9	79	
2005	0		93.0	51.3	97	
2006	0		96.0	46.2	(insufficient data)	
2007	0		83.0	37.7	87	
2008	0		111.1	(insufficient data)	111	
2009	(insufficient data)		(insufficient data)	(insufficient data)	(insufficient data)	
Sources: San Joaquin Unified Air Pollution Control District, California Air Resources Board Air Quality Trends Summary						

Local Sources of Air Pollution

Present land uses within the Study Area include agricultural production, residential dwellings, commercial/office space, and industrial uses. Major sources of air emission sources in and around the Study Area are on- and off-road equipment and farming activities, burning that can create substantial dust or soot emissions, and automobile travel.

Agricultural land uses present in the Study Area can also occasionally cause emissions of TACs from pesticide application. A search of the stationary source facility database maintained by CARB indicated the following facilities are the major air pollutant emitters in the area: Designed Mobile Systems, Inc. - 800 S. Highway 33; Global Valley Networks Inc. - 25 El Circulo (now located in the Keystone Business Park); Unocal California Pipeline Co. - 2900 Oak Flat Road; and Vieira's Petroleum Company - 341 South First Street.

Of these facilities, the one emitting the largest mass of air pollutants is Designed Mobile Systems, Inc., which designs and builds modular buildings on 11 acres of land in the southern portion of the Study Area. The following is the 2002 emissions inventory for that facility in tons per year: Total organic gases - 13.2; ROG - 13.2; PM - 6.9; PM10 - 6.6; PM2.5 - 6.4.

Mobile sources in the Study Area are the major source of air emissions. Traffic on State Route 33 and other on-road vehicles throughout the region's transportation network routinely emit ROG, NOx, and CO. On- and off-road vehicles are also a major source of respirable particulate matter emissions (PM10 and PM2.5) from entrained dust on the roadways. Exhaust from diesel train engines is another source of air emissions. There are active Union Pacific (UP) railroad tracks running through the Study Area, parallel to Highway 33.

Regulatory Setting

Federal Regulations

The Clean Air Act/U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the Federal Clean Air Act and the 1990 amendments to it ("Federal CAA"), and the national ambient air quality standards (federal standards) that the EPA establishes. These standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The U.S. EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

Intermodal Surface Transportation Efficiency Act (ISTEA)

The ISTEA program requires transportation projects to not impact the ability to attain air quality standards, and requires demonstration of expeditious implementation of Transportation Control Measures (TCMs).

Federal Transportation Funding Reauthorization

The FTR provides funding for transportation projects that enhance air quality (e.g. Congestion Mitigation Air Quality (CMAQ), Transportation Enhancement, and Bicycle and Pedestrian Funding). It also provides funding for the expeditious implementation of TCMs included in air quality plans.

Federal Hazardous Air Pollutant Program

Title III of the CAA requires EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs (major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources).

The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA was required to promulgate health risk-based emissions standards where deemed necessary to address risks remaining after implementation of the technology based NESHAP standards.

The CAAA required EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1, 3-butadiene. In addition, Section 219 requires the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions.

State Regulations

California Clean Air Act/California Air Resources Board

The California Air Resources Board, a department of the California Environmental Protection Agency (Cal EPA), oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAA requirements, and for regulating emissions from motor vehicles and consumer products within the State. ARB has established emission 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 amendments to the CCAA establish ambient air quality standards for the State (state standards) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the Federal CAA, and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM₁₀ and SO₂, far more stringent.

Tanner Air Toxics Act

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and has adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, ARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. ARB has adopted diesel exhaust control measures and more stringent emission standards for various onroad mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public-transit bus-fleet rule and emission standards for new urban buses. These rules and standards provide for (1) more stringent emission standards for some new urban bus engines, beginning with 2002 model year engines; (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and (3) reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Current and upcoming milestones include the low-sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks and off-road diesel equipment (2011) nationwide.

Air Quality and Land Use Handbook

As part of its Community Health Program, ARB has developed an Air Quality and Land Use Handbook, which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects subject to the land use decision-making process. ARB is also developing related information and technical evaluation tools for addressing cumulative air pollution impacts in a community. Any recommendations or considerations contained in the Handbook are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

ARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

The Handbook identifies ARB's recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that have been evaluated from the standpoint of the proximity issue. It is based on available information and reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants.

Senate Bill 1078/Senate Bill 107/Executive Order S-21-09—Renewable Portfolio Standard

Established in 2002 under SB 1078, and accelerated in 2006 under SB 107, California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers and community choice aggregators to procure an additional 1 percent of retail sales per year from eligible renewable sources until 20 percent is reached, no later than 2010. The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are jointly responsible for implementing the program.

In September, 2009, Governor Schwarzenegger issued Executive Order S-21-09 directing CARB to adopt regulation by July 31, 2010 requiring a RPS goal of 33 percent by 2020.

Executive Order S-3-05 – Greenhouse Gas Emission Reduction Targets

In 2005, Governor Schwarzenegger issued California Executive Order S-3-05 establishing the following GHG emission reduction targets for California:

- Reduce GHG emissions to 2000 levels by 2010.
- Reduce GHG emissions to 1990 levels by 2020.
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

Executive orders are binding only to State agencies. Accordingly, Executive Order S-3-05 will guide State agencies' efforts to control and regulate GHG emissions but have no direct binding effect on local efforts.

Executive Order S-01-07-Low Carbon Fuel Standard

Executive Order S-01-07 was enacted by Governor Schwarzenegger on January 18, 2007. The Order mandates the following:

- A statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

- A Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California.

In response, CARB adopted a LCFS standard in April 2009 and is currently considering implementing regulations for the LCFS.

California Global Warming Solutions Act of 2006 (AB32)

Following Executive Order S-3-05 in June 2005, which declared California's particular vulnerability to climate change, the California Global Warming Solutions Act of 2006 (AB 32) was signed into law on September 27, 2006. In passing the bill, the California Legislature found that "Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems"⁷.

In summary, AB 32 requires ARB to:

- Establish a Statewide GHG emissions cap for 2020 by January 1, 2008, based on 1990 emissions;
- Adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;
- Adopt a plan by January 1, 2009 indicating how emissions reductions will be achieved from significant GHG sources, via regulations, market mechanisms and other actions; and
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHG emissions.

In December 2008, ARB finalized a Climate Change Scoping Plan, pursuant to AB 32. This Scoping Plan proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, and enhance public health while creating new jobs and enhancing the growth in California's economy. Key elements of the Scoping Plan for reducing California's greenhouse gas emissions to 1990 levels by 2020 include:

- Expansion and strengthening of existing energy efficiency programs and building and appliance standards;
- Achievement of a Statewide renewables energy mix of 33 percent;
- Development of a California cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system;
- Establishment of targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adoption and implementation of measures pursuant to existing State laws and policies, including California's clean car standard, goods movement measures and the Low Carbon Fuel Standard; and
- Creation of targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the State's long-term commitment to AB 32 administration.

⁷ California Health & Safety Code, Division 25.5, Part 1

Assembly Bill 1493

Assembly Bill 1493 (Pavley) of 2002 requires CARB to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as "Pavley I." The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change including a reduction in the State's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs.

Senate Bill 97 Chapter 185, Statutes of 2007 and Office of Planning and Research Guidelines

SB 97 was written in August 2007 to clarify responsibilities for analyzing greenhouse gas emissions in accordance with the California Environmental Quality Act (CEQA). This law formally acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The Governor's Office of Planning and Research (OPR) was responsible for developing guidelines for addressing climate change in CEQA documents by 2009, which were adopted in January 2010 by the State Resources Agency. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

Section 15064.4 provides the following guidance with respect to determining the significance of impacts from greenhouse gas emissions:

15064.4. DETERMINING THE SIGNIFICANCE OF IMPACTS FROM GREENHOUSE GAS EMISSIONS

- (a) *The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:*
 - (1) *Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or*
 - (2) *Rely on a qualitative analysis or performance based standards.*
- (b) *A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:*
 - (1) *The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;*
 - (2) *Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.*
 - (3) *The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is*

substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Assembly Bill 170

AB (Assembly Bill) 170, which created Government Code Section 65302.1, requires cities and counties in the San Joaquin Valley to amend appropriate elements of their general plans to include data, analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality. Specifically, the bill recommends that the following be included in the general plan:

- a. Determine and mitigate project level and cumulative air quality impacts under the California Environmental Quality Act (CEQA) (Division 13 (commencing with Section 21000) of the Public Resources Code).
- (B) Integrate land use plans, transportation plans, and air quality plans.
- b. Plan land uses in ways that support a multimodal transportation system.
- c. Local action to support programs that reduce congestion and vehicle trips.
- d. Plan land uses to minimize exposure to toxic air pollutant emissions from industrial and other sources.
- e. Reduce particulate matter emissions from sources under local jurisdictions.
- f. Support district and public utility programs to reduce emissions from energy consumption and area sources.

Based upon the schedule outlined in the bill, jurisdictions in Fresno and Kern counties are required to comply with this requirement by June 30, 2009. Jurisdictions in Stanislaus, San Joaquin, Merced, Kings, Tulare, and Madera counties are required to comply by June 30, 2010.

Local and Regional Regulations

San Joaquin Valley Unified Air Pollution Control District

The SJVUAPCD has adopted several attainment plans to achieve State and federal air quality standards to comply with the CCAA and Federal CAA. The SJVUAPCD must continuously monitor its progress in implementing attainment plans and must periodically report to the ARB and the EPA. It must also periodically revise its attainment plans to reflect new conditions and requirements in accordance with schedules mandated by the CCAA and Federal CAA. Following are descriptions and the current status of the District's various air quality attainment plans.

Ozone Plans

Federal 1-Hour Ozone: 2004 Extreme Ozone Attainment Demonstration Plan. After passage of the Federal CAA, the SJVAB was classified "serious" nonattainment for the federal 1-hour ozone standard. Accordingly, the district prepared and submitted the 1994 Ozone Attainment Demonstration Plan which projected attainment of the federal ozone standard by 1999. This goal was not achieved by the deadline and the SJVAB was reclassified from "serious" to "severe" nonattainment with a new attainment deadline of November 15, 2005. The district began preparing a Severe Ozone Attainment Demonstration Plan in 2001 and determined that attainment could not be achieved by the 2005 deadline. The district requested reclassification from "severe" to "extreme" nonattainment with a new attainment deadline of November 15, 2010. ARB approved and submitted to EPA the district's 2004 Extreme Ozone Attainment Demonstration Plan for approval in November 2004.

The U.S. EPA has since revoked in full the federal 1-hour ozone ambient air quality standard, including associated designations and classifications, in all areas except 14 early action compact areas that do not

include the SJVAB. As such, transportation conformity and de minimis thresholds for 1-hour ozone no longer apply, contingency measures are not needed, and EPA will not make a finding of a failure to attain. However, other requirements still apply, including anti-backsliding provisions, rate of progress reductions, reasonably available control technologies (RACT), and black box measures (provisions of an Extreme Area's implementation plan that anticipate development of new control techniques of improvement of existing control technologies)⁸.

State 1-Hour Ozone: In accordance with the CCAA, the District prepared the Air Quality Attainment Plan in 1991 which was subsequently approved by ARB in 1992. California Health and Safety Code requires that a report be prepared every three years that summarizes the progress made by the District in meeting the schedules for developing, adopting and implementing the air pollution control measures contained in the District's plan. The District's most recent progress report, the California Clean Air Act Triennial Progress Report and Plan Revision, 1997-1999 was prepared and submitted to ARB in March 2001⁹.

Federal 8-Hour Ozone: 2007 Ozone Plan. The SJVAB was classified as "serious" nonattainment for the federal 8-hour ozone standard on April 15, 2004 and was given an attainment deadline of June 15, 2013. The District approved the 2007 Ozone Plan on April 30, 2007 and submitted it, on schedule, to the U.S. EPA on June 15, 2007. The plan was adopted in December 2008¹⁰.

Carbon Monoxide Plan

The 1992 Federal Attainment Plan for Carbon Monoxide established the regulatory groundwork in order to bring the SJVAB into compliance with the NAAQS for carbon monoxide. The Final Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Areas (April 1996) demonstrated that the SJVAB was in compliance with the NAAQS for carbon monoxide and requested redesignation to attainment status. This plan was approved by the U.S. EPA on June 1, 1998. The SJVUAPCD revised this maintenance plan in 1998 and 2004¹¹.

PM10 and PM2.5 Plans

PM10

After passage of the Federal CAA, the SJVAB was classified nonattainment for PM10 and was required to adopt a PM10 plan by November 15, 1991. The District submitted a plan but was unable to demonstrate attainment by the deadline of December 31, 1994. This resulted in reclassification to "serious" nonattainment with a new attainment deadline of December 31, 2001. On May 15, 1997, the District submitted a PM10 Attainment Demonstration Plan; however, the EPA indicated that it intended to disapprove the plan and the District withdrew. EPA approved the 2003 PM10 Plan on May 26, 2004 and approved the 2005 Amendments to the 2003 PM10 Plan on May 19, 2005. The District's most recent PM10 plan is the 2006 PM10 Plan. This plan sets forth the approach the SJVUAPCD will use to attain the NAAQS for PM10¹².

⁸ SJVUAPCD, 2008

⁹ SJVUAPCD, 2008

¹⁰ SJVUAPCD, 2008

¹¹ SJVUAPCD, 2008

¹² SJVUAPCD, 2008

PM2.5

The U.S. EPA adopted the first NAAQS for PM2.5 in 1997 and classified the SJVAB as nonattainment. The District prepared and adopted the 2008 PM2.5 Plan in April 2008 which plans for attainment of the 1997 federal standards, the 2006 federal standards, and the state standard as soon as possible¹³.

Rules and Regulations

There are several rules and regulations administered by the SJVUAPCD that would generally apply to the construction and operation of development projects that would be permitted under the Patterson General Plan.

Regulation VIII – Fugitive PM10 Prohibitions

The SJVUAPCD has adopted a set of PM10 Fugitive Dust Rules that are codified through Regulation VIII. Regulation VIII is comprised of District Rules 8011 through 8081 which are designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

Rule 4002 – National Emission Standards for Hazardous Air Pollutants

In the event that any portion of an existing building will be renovated, partially demolished or removed, the project will be subject to District Rule 4002. Prior to any demolition activity, an asbestos survey of existing structures on the project site may be required to identify the presence of any asbestos containing building material (ACBM). Any identified ACBM having the potential for disturbance must be removed by a certified asbestos contractor in accordance with CALOSHA requirements.

Rule 4102 – Nuisance

This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the project or construction of the project creates a public nuisance, it could be in violation and subject to District enforcement actions.

Rule 4601 – Architectural Coatings

This rule limits volatile organic compounds from architectural coatings by specifying architectural coatings storage, clean up and labeling requirements and applies to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating. Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations If asphalt paving will be used, then paving operations of the proposed project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations. District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at anytime the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The proposed project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.

Rule 9510 Indirect Source Review

District rule 9510 Indirect Source Review (ISR) was adopted on December 15, 2005. ISR was adopted to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans. ISR requires submittal of an Air Impact Assessment (AIA) application no later than the date on which application is made for final discretionary approval by the public agency. The AIA is used to determine the construction and operational impacts of a proposed development project. The proposed project

¹³ SJVUAPCD, 2008

qualifies as a development project under Rule 9510 because it contains more than 2,000 square feet of commercial space. Section 6.0 of the Rule outlines general mitigation requirements for construction equipment emissions, the rule specifies that exhaust emissions for construction equipment greater than 50 horsepower need to reduce NO_x exhaust emissions by 20 percent and PM10 exhaust emissions by 45 percent. The alternative to achieving these onsite reductions is to pay a fee for the excess emissions of NO_x and/or PM10.

Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA

On December 17, 2009, the San Joaquin Valley Air Pollution Control District adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. Both documents utilize Best Performance Standards (BPS) to help lead agencies in assessing the significance of a project's contribution of GHGs on global climate change. A Best Performance Standard utilizes established metrics or project design elements to quantify the reduced GHG emissions expected to result. These tools are intended to simplify and streamline the CEQA review process, establishing clear criteria for lead agencies to apply in project assessment. Policies would facilitate the determination of a less than cumulatively significant impact on climate change if BPS were implemented; otherwise, project demonstration of a 29 percent reduction in GHG emissions from a business-as-usual scenario would achieve a less than cumulatively significant impact on climate change. These BPS scenarios and related guidance are available to Valley land-use agencies for adoption to utilize in addressing GHG emissions when the agency serves as a lead agency for CEQA purposes. The December 17, 2009, *Final Staff Report Climate Change Action Plan: Addressing GHG Emissions Impacts under CEQA* further summarizes the BPS strategies to address GHGs through CEQA. Overall, these guiding policies are intended to supplement the lack of guidance for addressing climate change in the Valley.

The legality of utilizing this approach to mitigate GHG emissions has been challenged by the State of California Attorney General's Office. The Attorney General's Office has expressed concern that the approaches suggested in the District's Staff Report will not withstand legal scrutiny and may result in significant lost opportunities for the Air District and local governments to require mitigation of greenhouse gas (GHG) emissions.¹⁴ Therefore, while the District's work creates a good interim framework to address GHG emissions absent a programmatic approach for mitigating greenhouse gas emissions, the comments of the Attorney General's Office creates a situation where the decision to use the air district's guidelines should be weighed against the legal uncertainty of relying on such guidance.

City of Patterson

Local government responsibilities for air quality are found in four areas: (1) land use planning; (2) reviewing and mitigating the environmental impacts of development projects; (3) developing and maintaining the transportation infrastructure in the community, including transit systems; (4) implementing local air quality programs such as commute-based trip reduction and rideshare.

Land Use Regulations

State law places responsibility for land use planning in the hands of city and county governments. With this responsibility comes the authority to approve development projects. As part of their duties, cities and counties are required to prepare a "general plan." The general plan is a comprehensive document that sets a community's goals and policies for development over a long period (often 20 years) and designates in general terms where certain land uses will be allowed. The general plan has seven mandatory elements, but any issues can be addressed as the city or county sees fit. Air quality can be addressed within one or

¹⁴ Attorney General's Office November 4, 2009.

more of the mandatory elements, usually the Land Use, Conservation, or Circulation Elements. Section 65302.1 of California Government Code, added by AB 170 in 2003, requires cities and counties in the San Joaquin Valley to amend appropriate elements of general plans to include data, analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality.

Environmental Review

The California Environmental Quality Act (CEQA) was enacted by the state legislature in 1970 and has been amended on numerous occasions. It applies to government initiated plans, projects, and regulations as well as to private projects requiring discretionary approval from a state or local agency. Under CEQA, a local planning agency is designated as the lead agency for most private development projects. CEQA requires the lead agency to conduct an initial study to determine if a project may have a significant adverse impact on the environment. Lead agencies are required to consult with and request comments from responsible agencies, agencies that exercise authority over resources, which may be affected by the project. The lead agency may choose to require or not require the measures suggested by the responsible agency. Projects with significant adverse impacts require the lead agency to prepare a report referred to as an Environmental Impact Report (EIR). Projects that will not have a significant effect, or projects that are modified to avoid significant effects, require the lead agency to prepare a Negative Declaration. CEQA allows lead agencies to disapprove a project if necessary to avoid one or more significant effects on the environment. The planning agencies' authority to disapprove projects compels developers to include measures in the project to reduce significant environmental impacts.

Stanislaus Council of Governments (StanCOG)

The Stanislaus Council of Governments is responsible for regional transportation planning for Stanislaus County. The federal Clean Air Act amendments require transportation plans to conform to the air quality goals of the SIP. This means that states must assure that transportation programs do not undermine the attainment of air quality standards. StanCOG is responsible for making the conformity finding. The Air District's role in this process is one of consultation.

Standards of Significance

The State CEQA Guidelines Appendix G significance criteria and establishes the following standards of significance.

Air Quality

A project would result in a significant impact to air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project is non-attainment under applicable federal or state ambient air quality standards;
4. Expose sensitive receptors to substantial pollutant concentrations;
5. Create objectionable odors affecting a substantial number of people.

Climate Change

In accordance with State CEQA Guidelines Appendix G, a project would have significant impact relating to climate if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. For purposes of this EIR, a project which fails to achieve the reduction targets set forth by AB 32 and Executive Order S-01-07 at buildout is considered to have a project-specific and cumulatively considerable significant impact on climate change.

Since the objectives set forth by AB 32 and Executive Order S-01-07 are aimed at reducing greenhouse gas emissions below baseline levels, a general plan alternative with the potential to increase greenhouse gas emissions above baseline levels is considered to have a project-specific and cumulatively considerable significant impact on climate change.

With regard to conflicts with adopted plans, the City has not adopted a plan for achieving the GHG reduction targets set forth by AB 32 and Executive Order S-01-07. Therefore a general plan alternative that fails to achieve these reduction targets is considered to have a project-specific and cumulatively considerable significant impact on climate change.

Climate change is the result of cumulative global emissions. There is no single project, when taken in isolation, that can “cause” global warming because a single project’s emissions are insufficient to change the radiative balance of the atmosphere. Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is a significant cumulative impact of human development and activity. The global increase in GHG emissions that has occurred and will occur in the future is the result of the actions and choices of individuals, businesses, local governments, states, and nations. Thus, the assessment of climate change impacts necessarily involves the cumulative contributions to a significant global impact.

On a State level, AB 32 identified that an acceptable level of GHG emissions in California in 2020 is 427 MMTCO₂e, which is the same as the 1990 GHG emissions level. This level is also approximately 15 percent less than current GHG emissions and approximately 28 percent less than projected 2020 Business As Usual¹⁵ conditions¹⁶. In order to achieve these GHG reductions, there will have to be widespread reductions of GHG emissions from sources in many various sectors across the California economy. Some of those reductions will need to come from the existing sources of emissions in the form of changes in vehicle emissions and mileage, changes in the sources of electricity, and increases in energy efficiency by existing residential, commercial, industrial and agricultural development, as well as other measures. In the upcoming years, the State will be adopting comprehensive regulations to reduce the GHG emissions from vehicles, industry, buildings and other sources. These regulations are expected to play a major part in reaching the goal of reducing currently projected 2020 emissions levels by 15 percent compared to current levels.

¹⁵ “Business as usual” (BAU) conditions are defined as population and economic growth in the future using current (2009) building practices and current (2009) regulatory standards. For this EIR, reference to BAU conditions are specifically defined as including current mandatory requirements, such as Title 24 (Energy Efficiency Standards); current federal vehicle mileage standards; California AB 1493 vehicle emission standards; current renewable portfolio standards, including RPS (SB 1078 and SB 107) for California regulated utilities; current County water efficiency requirements; and other existing local and State requirements. BAU conditions presume no improvements in energy efficiency, water efficiency, fuel efficiency beyond that existing today or as required by existing (2009) statute. Specifically, BAU conditions do not include the GHG reduction measures included in the CARB Draft Scoping Plan from June 2008, which are not yet enacted in statute.

¹⁶ California Air Resources Board, May 22, 2009, Greenhouse Gas Inventory 2020 Forecast, <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>, accessed September 25, 2009.

While actions by the City can help to promote GHG reductions from the existing economy, existing development is not under the discretionary land use authority of the City, and thus most of these reductions will come as the result of State and federal mandates. The remainder of the necessary GHG reductions will need to come from requiring new development to have a lower carbon intensity than BAU conditions.

These limitations notwithstanding, it is important to ensure that the City is doing its part to ensure that California, cumulatively, meets the AB 32 target. CARB specifically recommended in the adopted Scoping Plan that municipalities adopt a goal of reducing emissions by 15 percent compared to current levels¹⁷. While there can, and likely will be, variation in how much reduction each city, county or region can realistically achieve by 2020, on the average each jurisdiction must reduce emissions by approximately 15 percent compared to current conditions.

With regard to the effects of climate change on “the project” (the City as it may grow and develop in accordance with the Equal-Weight Alternatives) it should be noted that a certain level of environmental change is inevitable due to current GHG emissions and unavoidable future increases in GHG emissions worldwide. Change on a local basis to the City’s water supplies, flooding, wildfire potential, environmental health, and other areas is reasonably foreseeable, although not necessarily unquantifiable in all aspects as present. New development allowed accommodated by any of the Equal-Weight Alternatives could place persons and property at higher levels of risk to climate change effects if they do not anticipate reasonably foreseeable changes in environmental conditions.

Thus, for this EIR, the Equal-Weight Alternatives would result in a cumulatively considerable contribution to a significant impact if development accommodated by the particular alternative is unprepared for reasonably foreseeable environmental changes that will occur due to climate change, and thus subject property and persons to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts.

Standards of Significance for Construction-Related Emissions

The SJVUAPCD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SJVUAPCD and that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. As development projects that are allowed due to the proposed policies of the General Plan Update are constructed, compliance with Regulation VIII and implementation of the control measures required by the SJVUAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than-significant¹⁸.

Standards of Significance for Operational Carbon Monoxide Impacts

The Equal-Weight Alternatives would have a significant impact on localized CO concentrations if:

- A traffic study indicates that the Level of Service (LOS) on one or more streets or at one or more intersections will be reduced to LOS E or F; or
- A traffic study indicates that the General Plan Update will substantially worsen an already existing LOS F on one or more streets or at one or more intersections.

¹⁷ California Air Resources Board, December 2008, AB 32 Scoping Plan.

¹⁸ SJVUAPCD 2002

If either of the above criteria can be associated with any intersection affected by the project, a CO Protocol Analysis would be needed to determine significance. The SJVUAPCD has established a preliminary screening protocol that can be used to determine with fair certainty whether the proposed General Plan buildout would potentially cause a future CO exceedance of federal standards.

Project Impacts and Mitigation Measures

Methodology for Air Quality Impacts

This air quality analysis is based on the land use designations identified for each of the Equal-Weight Alternatives and based on the projected traffic associated with each as described in Section 5.6 Transportation. The analysis was prepared consistent with the Guide for Assessing and Mitigating Air Quality Impacts developed by the SJVAPCD, based on the “Full Analysis Level” of analysis. The Urban Emissions Model (URBEMIS2007) was used to estimate operational emissions (motor vehicles, area sources). Construction emissions were not estimated due to the uncertainty in the amount of construction that would occur in any one year.

The URBEMIS model is used extensively during the CEQA process by local air districts and consultants to determine the impacts of projects on criteria pollutants. It was recently updated to calculate CO₂ emissions as well. Future updates will include additional greenhouse gases. URBEMIS uses the Institute for Transportation Engineers (ITE) Trip Generation Rate Manual and the Air Resources Board’s (ARB) motor vehicle emissions model (EMFAC) to calculate transportation-related CO₂ emissions and ARB’s OFFROAD2007 model for CO₂ emissions from off-road equipment. Area source outputs include natural gas use, landscaping equipment, consumer products, architectural coatings, and fireplaces. It also estimates construction impacts and impacts of mitigation options.

The SJVAPCD Guide for Assessing and Mitigating Air Quality Impacts requires emissions to be estimated for the build-out year (the 40 year buildout growth boundary, or 2050 for Patterson) and an intermediate year (the 20 year growth boundary, or 2030 for Patterson). Emissions associated with development within the 40-year growth boundary have been quantified using 2010 emission factors because emissions factors are not available for the year 2050. Accordingly, the resulting quantities are for comparison purposes only and provide a relative indication of future emissions in relation to the SJVAPCD thresholds of significance for operational impacts. Motor vehicle trip generation rates were obtained from the Traffic Study prepared for the project by TJKM Transportation Consultants (the reader is referred to section 5.6 – Transportation). Default values developed for Stanislaus County for motor vehicles (fleet mix, trip length, temperature, etc.) and area sources were used in the URBEMIS 2007 model.

Methodology for Assessing Climate Change Impacts

Greenhouse gas emissions are quantified for each Equal-Weight Alternative and for each growth boundary using emission factors from a variety of sources as described in Appendix 5.7B and as summarized in Tables 5.7-6 and 5.7-7. Future emissions are compared with the 2010 emission inventory to determine the “business as usual” increase for the years 2020 (the timeframe for achieving 1990 emission levels as prescribed by AB32), for the year 2030 (the timeframe for the 20-year growth boundaries of each Equal-Weight Alternative), and 2050 (buildout, and the timeframe for achieving GHG emissions 80% of 1990 levels as prescribed by Executive Order S-3-05). The estimated 2020, 2030 and 2050 emissions for each Equal-Weight Alternative are then compared with the emission targets established for the year 2020, 2030 and 2050.

Secondly, the calculated emission reduction value of recommended policies of the draft Policy Document, along with the GHG reduction value of programs expected to be implemented by the State between 2010 and 2050 are then deducted from the resulting Business As Usual emissions and compared with the relevant emission reduction target. The methodologies used to calculate the emissions reduction values for general plan policies are summarized in Table 5.7-10. It should be noted that emission reductions have been calculated only for those policies for which emission reduction methodologies are available.

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
Energy Efficiency, Conservation and Production	
CD-1.8	- Assumes implementation of a green building ordinance that requires development to surpass California Title 24 energy standards by 15 percent, as amended, and quantifies reduced energy consumption that will result. - Assumes that 50 percent of development between 2009 and 2030 will occur after adoption of this ordinance. - Assumes percentage reductions in energy use from 2008 Title 24 Energy Efficiency Improvements in comparison to 2005 baseline efficiency. - For 2030 reductions, assumes Tier 1 reductions for all new development. - Residential electricity 36.80 percent reduction - Residential natural gas 24.82 percent reduction - Non residential electricity 19.90 percent reduction - Non residential natural gas 24.40 percent reduction - Assumes Tier 2 for commercial development 2030-2050. - Electricity 34.90 percent reduction - Natural gas 39.40 percent reduction - Assumes Zero Net Energy for residential development 2030-2050. - Assumes all growth in natural gas and electricity sectors is from new construction.
AR-7.6	- Assumes public education leads to lowered energy consumption rates. - Based on empirical data from a public education campaign designed to reduce emissions of criteria air pollutants in the Sacramento region (the Spare the Air program). This is one of the few public outreach campaigns that conducted an analysis of the effectiveness of the program as it relates to emission reduction. Although this outreach campaign is transportation- and not energy-related, findings are used for market penetration. The analysis confirmed that approximately 1 percent of people changed their behavior (i.e., took fewer vehicle trips on Spare the Air days) as a result of the Spare the Air campaign - For the City's public education campaign, it was assumed that approximately 1 percent of people would reduce their emissions from electricity and natural gas by 10 percent.
AR-7.8	- Assumes reduction in energy consumption that will result from creation of a finance mechanism such as a Property Assessed Clean Energy bond to finance energy efficiency improvements (e.g., AB 811 type program). - Reductions in kWh from renewable energy facilities: Calculation takes 15 percent of kWh energy use for new and existing residential and commercial development, as depicted in the kWh used in 2030, phased in with only 8 percent applied in 2030. The estimate of photovoltaics installed is restricted to installations on existing homes by 2030 and all commercial properties, both those existing by 2030 and those that will be constructed after 2030. It excludes renewable installations to power new developments that come as a result of green building efforts and the State's Zero Net Energy Homes effort in the Green Building measure (represented by the difference of projected kWh between 2030 and 2050).

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
	- Therms for residential uses: Reductions for greater efficiencies in water heaters are applied only to new residential development in 2030, including therms for water heating in existing development and excluding reductions resulting from the State's Zero Net Energy Homes effort that will result by 2050 (accounted for in the Green Building measure). It accounts for all possible savings that would be generated by more efficient water heaters. - Assumes a 15 percent market penetration of renewable energy facilities and water heaters in the target years phased in with only 8 percent penetration achieved by 2030 and that this penetration rate will apply to new and existing development in 2030 (excluding reductions that will be attributed to green building efforts and the State's Zero Net Energy Homes effort (represented by new kWhs in 2030)). - Assumes that 44 percent of residential natural gas is used for water heating (CPUC Sept. 2008) and that this rate will remain constant. - Assumes that there is 19.5 percent in natural gas savings for improved efficiency water heaters (the average of tankless and efficient gas storage models according to Energystar.gov savings & benefits Web pages) and that this will remain constant. - Assumes that conversion to more efficient water heaters is merely an issue of turnover and easy for property owners to finance because of minimal price differences and existing subsidies. The reductions for more efficient water heaters are assumed to be achieved in all new development in 2030.⁷³ This measure excludes all therm use attributed to new residential development between 2030 and 2050, which is captured under Policy CD-1.8 and which takes credit for the State's Zero Net Energy Homes effort.
NR-14	- Quantifies reduced electricity consumption that results from combating the urban heat island affect. - Assumes a combination of the following strategies will be utilized for 50 percent of the landscape (including roads, sidewalks, courtyards, and parking lots): Shade (within 5 years of occupancy); paving materials with a solar reflective index (SRI) of at least 29; open grid pavement system. - The urban area is assumed to be approximately 40 percent pavement. Assumes total of 30 percent of all existing pavement will be replaced with high albedo content, as supported by the literature⁷⁴. - Pavement has a potential for a .15 increase in albedo. $0.40 * 0.30 * 0.15 =$ Net change of 0.018 by 2030. Assumes half will be achieved by 2020, or .009. Assumes a 10K decrease in temperature for a 0.25 increase in albedo. - Electricity demand in cities increases by 2–4% for each 1 degree Celsius increase in temperature. Assumes 3 percent increase for each 1 degree Celsius increase in temperature; conversely, this quantification assumes that for each degree change in temperature, there will be a 3 percent change in electricity use.
AR-7.5	- Quantifies the impact of improved orientation and solar shading requirements on electricity consumption. - Planting shade trees within 40 feet of the south side or within 60 feet of the west sides of properties can reduce summertime energy consumption associated with air conditioning by

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
	approximately 30 percent. - If trees are planted strategically to shade east and west walls of residential buildings, they would reduce air conditioning energy use by 6,408 GWh, equivalent to an average annual CO₂ equivalent emission reduction of 1.8 metric tons. - If 50,000,000 trees would reduce energy use by 6,408 GWh (6,408,000,000 kWh), then 1 tree reduces energy use by 128.16 kWh per year. - Assumes that the following trees would reach maturity in 5 to 10 years: Approximately 3 percent of existing residential properties in Patterson would receive an additional tree by 2030 (assumed to equal the same percentage of existing dwelling units in 2009) and 10 percent of new residential properties by 2050, and that 1 new tree would be planted for every 5,000 square feet of nonresidential use for each target year.
NR-1.10	- Calculates the energy savings that result from reduced indoor water use. - Assumes implementation of actions such as the following related General Plan policies: - PS-1.6 Reclaimed water. The City shall require the use of reclaimed water by industrial, commercial, recreational, agricultural and roadway landscaping uses. - PS-1.11 New development conservation measures. The City shall require all new development to use best available technologies for water conservation including, but not limited to, water-conserving toilets, showerheads, faucets, and irrigation systems. - PS-2.5 Reuse of treated water. The City shall research viable options for the reuse of treated wastewater, in conjunction with industrial, commercial, agricultural, recreational, and public landscaping uses. - Assumes a 20 percent reduction in indoor water use by 2030 and a 25 percent reduction by 2050. Conservative assumption, based on SBx7-7, signed into law in November 2009, which aims to reduce urban use 20 percent statewide by 2020. - Assumes the Northern California average of energy used per gallon of indoor water consumed is .0054 kWh.⁷⁸ Consumption rate is assumed to remain constant. - To determine the amount of water consumed in the city, assumes the indoor per capita water average of 69.3 gallons. ⁷⁹ assumed to remain constant in the business-as-usual projections.
Land Use	
AQ-1.12	- URBEMIS provides a 4 percent reduction in vehicle trips for each deed-restricted below market rate (BMR) unit. Thus, the total reduction is as follows: Trip reduction = % units that are BMR * 0.04. - The Regional Housing Needs Allocation Plan determined that 23 percent of the construction need in the county is classified as very low-income households and an additional 16 percent shows a need for low income. Assumes conservatively that by 2030 the RHNA will be met, and 30 percent of households in Patterson will be affordable to very low- and low-income households. Assumes this percentage remains constant until 2050. - Assumes reductions observed for BMR units equal reductions that will be achieved through very low- and low-income units.

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
	4. Assumes that all new traffic is caused by new business growth and new housing growth equally.
T-3.3	- Quantifies reduced VMT that will result from a ride-share program. - Estimated number of vehicles in Patterson calculated by assuming that the number of cars per household is constant with the countywide car per household figure. Car population derived from EMFAC2007, which uses historical DMV registration data. (356,872 cars in 2009 / 177,545 households) = 2.01 cars per household, which is in line with the national average. Rate assumed to remain constant. - SLO City TRIP (Trip Reduction Incentive Program) in cooperation with SLO County Rideshare: Case Study - In August 2009, there were 69 individuals enrolled in the City's incentive program (which includes rewards and guaranteed rides home for commuters). Cumulatively they eliminated 9,235.2 one-way trips and 122,675.3 VMT, or 133.84 trips and 1,777.903 VMT reduced annually per person. Total employment at the City of SLO was approximately 350 in 2008; therefore total participation was approximately 20 percent. - Assumes 30 percent participation rate achieved by 2050, with 20 percent participation rate phased in by 2030. - According to General Plan background report (2007), in 2000 36 percent of persons employed outside the home traveled more than 45 minutes to their place of work. Assumes conservative daily one-way work commute on average of 15 miles for those who will participate in rideshare. Assumes 49 work weeks a year, accounting for holidays. Equals yearly commute of 14,700 miles per rideshare participant.
CD-1.1	- Assumes reduced VMT triggered by the elasticity of travel associated with the increased mixture of uses. The literature supports a 5 percent reduction in vehicle miles traveled for every 100 percent increase in density and increase in convenience. To calculate the net increase in density in the city between 2005 and the target years, the following variables were needed. - Density calculated as population and jobs for each target year. - Assumes that a 5 percent reduction in VMT would result from each 100 percent increase in density.⁸¹ Accordingly, 0.05 was taken of each target year's percentage increase in density. The resulting number was the percentage reduction in VMT for the target year. - Similarly, the literature supports a 5 percent reduction for increasing the density of jobs-housing balance and convenience of shopping and services. Relying upon the percentage of travel attributed to shopping and commuting from national averages (14 percent shopping and 18 percent commuting), it was assumed that shopping and commuting related trips would be reduced by 5 percent.
ED-3.1	- Gives credit for reduced VMT that results from increased jobs-housing balance. - Assumes VMT Reduction = $(1 - (ABS(1.5 * h - e) / (1.5 * h + e)) - 0.25) / 0.25 * 0.03$ where h = study area housing units, e = study area employment.⁸² Also assumes an asymptote of 9 percent reduction, and an ideal 1.5 jobs per household. Note, these point reductions were taken from URBEMIS 2007 9.2.458 data according to sample jobs-to-housing ratio.

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
Transportation	
T-7.9	1. Quantifies reduced VMT that will result from improved alternative transportation programs for school-age children. 2. As of 2000 census, there were 3,164 school-age children in Patterson. Assumes number will remain constant until 2009. Assumes number of school-age children increases evenly with population growth. Number of school-age children includes children ages 5-17 in the city. 3. According to the Victoria Town Planning Institute, there are currently few detailed studies of the effectiveness of School Transport Management programs, but anecdotal evidence indicates that total reductions in automobile trips of 10-20 percent or more are possible at a particular school under programs such as a walking school bus.⁸³ Assumes a 15 percent reduction in automobile trips 4. Assumes average round-trip drop-off distance percent of trips are single-child drop-offs.
T-7.1	1. Quantifies reduced VMT that will result from provision of bike lanes. 2. Each mile of bikeway per 100,000 residents increases bicycle commuting 0.075 percent, all else being equal). Calculates the increase in bicycle commuting through the cumulative amount of bike lanes — both new lanes planned for construction and those already existing. 3. Assumes that 1 percent of trips are performed by bikes per national average. 4. Assumes constant level of service of bike lanes is provided, at a ratio of 1.73 miles bike lanes installed per 1,000 residents, and 21.12 miles of existing bike lanes in 2009.
T-7.6	1. Calculates reduced VMT that will result from enhanced bicycle support facilities. 2. Assumes bike facilities will be required at all new nonresidential uses. 3. According to the CAPCOA/the SJVAPCD Plan, provision of short- and long-term bike parking at the rate of 1:20 vehicle spaces supports a 0.625 percent reduction in emissions.⁸⁶ Assumes implementation of this development standard as a result of General Plan adoption. 4. According to the National Household Travel Survey, average annual VMT per household is 21,187 and the —to or from work— subcategory is 5,724 (27.0 percent). Shopping is 3,062 (14.5 percent), Other Family and Personal Business is 3,956 (18.7 percent), and Social and Recreational driving is 5,186 (24.5 percent).⁸⁷ Therefore, VMT attributed to commercial businesses is $27\% + 14.5\% = 41.5\%$. 5. Assumes that percentage of VMT attributable to new commercial development equals the percentage of all jobs that are new applied to VMT of commercial development. 6. Assumes that emissions reductions for commercial bicycle parking equally to short- and long-term bicycle parking spaces.
T-7.2	1. Quantifies reductions in VMT that result from enhanced pedestrian facilities.

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
	- Assumes a 3.5 percent reduction in VMT for connectivity to transit, measures which relegate parking to the rear of structures, providing shaded pedestrian pathways between transit facilities and building entrances, and minimizing barriers to pedestrian access of neighboring facilities and sites. - Assumes that all development will include the removal of physical barriers between residential and nonresidential uses that impede bicycle or pedestrian circulation.
T-1.12	- Quantifies reduction in VMT caused by traffic calming. - Assumes that a comprehensive menu of traffic calming measures shall be installed to utilize the full elasticity of vehicle travel. - The penetration of traffic calming measures is phased in, assuming that installation of such devices will impact 15 percent of VMT in 2030 and 25 percent of VMT in 2050. - Assumes that total VMT reductions from this action will be 10 percent by 2030 and 20 percent by 2050, based on conservative reductions from other case studies.
T-15	- Takes credit for reduced VMT that will result from paid parking measures. - Cost-based parking pricing (i.e., prices set to recover the full cost of parking facilities) typically reduces parking demand 10-30 percent compared with un-priced parking.⁹⁰ Reduction of 10 percent applied to local road trips to and from the downtown area, which were assumed to be a quarter of all local transportation. - Assumes establishment of paid parking that penetrates local VMT. - Assumes 48 percent of VMT takes place on local roads and is impacted.
Solid Waste	
PS-4.1	- Calculates reduced waste emissions that will result from a smaller waste stream. - Stanislaus County Regional Solid Waste Planning Agency's diversion rate was 61% in 2006. Assumed to remain constant. Assumes a 50 percent diversion rate by 2030 and a 70 percent rate by 2050. - Current composting methods are understood to produce greenhouse gas emissions; however commercial composting methods are expected to improve to negate these emissions by 2030 and 2050.
State Programs	
Renewable Portfolio Standard ³	- Takes credit for reduced electricity emissions that will result from energy production mandated under the RPS. - Pacific Gas and Electric (PG&E) had 13.6 percent renewable mix in 2008 (California Public Utilities Commission 2009). Assumes that the state will reach 50 percent renewable by 2050 as identified in the State's Strategic Energy Plan, phased in with 30 percent achievement by

Table 5.7-10: Methodologies And Assumptions for Calculating GHG Emission Reduction Values Of General Plan Policies and State Programs

Policy/Program	Methodologies and Assumptions
	2030 (CPUC 2009, http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf)
Pavley (AB1493) ⁴	- Quantifies reductions in emissions from VMT that will result from Pavley. - Pavley rules establish GHG emission standards for two different groups of passenger vehicles: (1) passenger cars (PC) and light-duty trucks with test weights under 3,751 pounds loaded vehicle weight (LDT1); and (2) light-duty trucks with test weights between 3,751 pounds loaded vehicle weight and 8,500 pounds gross vehicle weight (GVW) (LDT2). Medium-duty passenger vehicles (LDT3) between 8,500 and 10,000 pounds. GVW are included with manufacturers' LDT2 vehicles when determining compliance with California's GHG standards. For the purposes of this analysis, only vehicles up through 8,500 pounds were considered since the majority of LDT3 vehicles are commercial and therefore do not fall under the scope of the Pavley rules. - The GHG emission standards established by the Pavley regulation reflect not only exhaust CO₂ emissions resulting directly from operation of the vehicle, but also (1) tailpipe emissions of CH₄ and N₂O; (2) CO₂ emissions resulting from operating the air conditioning system (indirect AC emissions); and (3) Hydrofluorocarbon refrigerant emissions released from the air conditioning system due to either leakage, losses during recharging, sudden releases due to accidents, or release from scrapping of the vehicle at end of life (direct AC emissions). Analysis only accounts for CO₂ from tailpipe emissions. Air conditioning is not included in EMFAC estimates of CO₂e and methane and therefore not accounted for in the reductions. - EMFAC used to determine percentage of VMT by model year and percentage of VMT attributed to Pavley-applicable cars. For 2050 figures, utilized the compound average growth rate (CAGR) of trends for each data set from 2009 to 2030.
Low Carbon Fuel Standard ⁵	- Assumes a 9 percent reduction in global warming intensity (GWI) by 2020. - Assumes a 20 percent reduction in GWI by 2030.

Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report, URBEMIS 2007 v.9.2.4

Construction Related Impacts

Impact 5.7-1 Urban development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40-year growth boundaries may expose sensitive receptors to short-term particulate matter emissions resulting from construction activities. However, subsequent development would be subject to SJVUAPCD construction standards that address construction emissions. This impact is considered less than significant.

Construction of proposed land uses accommodated by the Equal-Weight Alternatives would generate exhaust emissions from construction equipment and vehicles, evaporative emissions from coatings and particulate matter (fugitive dust). These emissions may contribute to exceedances of particulate matter ambient air quality standards and are considered a **potentially significant short-term air quality impact**.

Although the SJUAPCD has not adopted standards of significance for construction-related emissions, the potential exists for construction-related emissions to adversely impact air quality on a temporary and short-term basis.

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Policies

- NR-4.7** **Source regulation.** The City shall review development projects using criteria established by the San Joaquin Valley Unified Air Pollution Control District in order to minimize future increases in vehicle travel and to assist in implementing appropriate indirect source regulations adopted by the Air Pollution Control District.
- AR-5.1** **Particulates from grading.** The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

Implementation Measures

- AR-1** Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.
- AR-2** Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.

Additional Recommended Mitigation

AR-6 The City shall require all of the following as a condition of project approval of future development projects:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track-out (earth material deposited on City streets by construction equipment) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activity when winds exceed 20 mph; and
- Limit area subject to excavation, grading, and other construction activity at any one time. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

The recommended policies implementation described above apply to each Equal-Weight alternative and will reduce construction-related impacts to a level of **less than significant**.

Additional Mitigation

None required.

Exposure to Toxic Contaminants

Impact 5.7-2 Buildout of the land uses accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review plans within both the 20-year and 40-year growth boundaries may create objectionable odors or expose sensitive receptors to toxic air contaminants. This impact is considered potentially significant.

As the City's population grows in accordance with the land uses designated by each of the Equal-Weight Alternatives, the number and distribution of sensitive receptors such as schools, day care facilities, nursing homes and health care facilities is likely to grow proportionately. The increased number of residences and other sensitive land uses associated with each of the Equal-Weight Alternatives may result in the siting of new sensitive land uses near existing sources of odors and TACs. TAC emissions from mobile and stationary sources may result in elevated ambient concentrations of TACs at these land uses, which may significantly increase human health risk. In addition, proposed new commercial and industrial land uses may have TAC emissions and may be located near existing sensitive land uses, which may significantly increase human health risk.

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Policies

- AR-1.0** **Source regulation.** The City shall review development projects using criteria established by the San Joaquin Valley Unified Air Pollution Control District in order to minimize future increases in vehicle travel and to assist in implementing appropriate indirect source regulations adopted by the Air Pollution Control District.
- AR-1.2** **APCD cooperation.** The City shall work with the San Joaquin Valley Unified Air Pollution Control District to ensure the earliest practicable attainment and subsequent maintenance of federal and state ambient air quality standards.
- AR-1.3** **CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- AQ-1.4** **Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AQ-1.10** **Transportation projects.** The City shall ensure that all transportation improvement projects submitted for inclusion in regional transportation plans (RTP, RTIP, CMP, etc.) shall be consistent with the air quality goals and policies of the General Plan.
- AR-4.1** **Sensitive receptors.** The City shall, to the extent practicable, separate sensitive land uses from significant sources of air pollutants or odor emissions. The City shall require residential

development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources toxic emissions such as freeways, major arterials, industrial sites, and hazardous material locations.

AR-4.2 Industrial uses. The City shall notify, and coordinate with, the San Joaquin Valley Unified Air Pollution Control District when industrial developments are proposed that may adversely impact air quality. Such coordination may include, but is not limited to, providing assistance to applicants in complying with applicable air quality regulations.

Implementation Measures

- AR-1 Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.
- AR-2 Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.

Additional Recommended Implementation Measure

- AIR-9 The following measures shall be required as a condition of approval for development projects with the potential to have adverse air quality impacts to sensitive land uses:
- Maintain a minimum 500 foot separation between sensitive land uses and the Interstate 5 freeway;
 - Maintain a minimum 1,000 foot separation between sensitive land uses and major rail yards;
 - Maintain a minimum 1,000 foot separation between sensitive land uses and major distribution centers (more than 100 trucks per day);
 - Maintain a minimum 300 foot separation between sensitive land uses and dry cleaning operations (500 feet for operations with two or more machines); and
 - Maintain a minimum 50 foot separation between sensitive land uses and gasoline dispensing facilities (300 feet if throughput exceeds 3.6 million gallons per year).
- AIR-10 When a project could expose sensitive receptors to toxic air contaminants the City shall require an applicant to perform a prioritization on all sources of emissions in accordance with guidelines adopted by the San Joaquin Unified Air Pollution Control District to determine if it is necessary to conduct a Health Risk Assessment. If a project has a prioritization score of 10 or more, the project has the potential to exceed the District's significance threshold for health impacts of 10 in a million and a Health Risk Assessment shall be performed.

Implementation of the above policies, implementation measures and recommended mitigation measures would prevent significant human health risks associated with TAC emissions. Therefore this impact is considered **less than significant**.

Operational Emissions

Impact 5.7-3 Operational emissions associated with development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives for both the 20-year and 40-year growth boundaries would exceed the 10 ton per year significance threshold for ozone precursor emissions. This is considered a potentially significant impact.

Operational impacts associated with each of the Equal-Weight Alternatives were modeled using the Air Resources Board Model URBEMIS 7. The model results are provided in Appendix 5.7A. The development of land uses accommodated by the Equal-Weight Alternatives would generate motor vehicle emissions and area source emissions (associated with natural gas combustion, fireplaces, woodstoves, landscaping maintenance, consumer products, architectural coatings). As shown in Table 5.7-11, the incremental increase in operational emissions associated with each of the Equal -Weight Alternatives of ROG and NOx would exceed the 10 ton per year threshold and would be considered a **potentially significant impact to regional air quality**.

Table 5.7-11: Year 2030 Operational Emissions Summary (tons/year)					
Source	ROG	NOx	CO	PM10	PM2.5
Compact Development Alternative					
Vehicles	175.0	167.4	1662.0	340.9	72.0
Area sources	147.2	32.0	531.4	81.6	78.6
Total	322.2	199.4	2193.4	422.5	150.6
Jobs Emphasis Alternative					
Vehicles	267.3	261.5	2579.1	531.8	112.3
Area sources	147.3	38.5	450.1	67.2	64.7
Total	414.6	300.0	3029.2	599.0	177.0
Planning Commission Environmental Review Alternative					
Vehicles	226.1	214.6	2136.7	437.2	92.4
Area sources	225.6	46.2	749.1	114.2	110.0
Total	451.7	260.8	2885.8	551.4	202.4
Source: Padre Associates, 2010 and URBEMIS 7 (See Appendix 5.7A)					

Emission factors for 2050 do not exist in 2010. However, Table 5.7-12 provides an estimate of operational and area source emissions based on 2010 emission factors. Accordingly, the resulting quantities are for

comparison purposes only and provide a relative indication of future emissions in relation to the SJUAPCD thresholds of significance for operational impacts. It should be noted that the emissions associated with motor vehicles and buildings in 2050 will likely be far lower than in 2010 as a result of technological innovations and responses to regulatory requirements to reduce the effects of human activities on global climate change. Nonetheless, Table 5.7-12 suggests that development accommodated by each of the Equal-Weight Alternatives will exceed the standards of significance for operational impacts currently adopted by the SJVUAPCD. This is considered a **potentially significant impact**.

Table 5.7-12: Year 2050 Operational Emissions Summary (tons/year)					
Source	ROG	NOx	CO	PM10	PM2.5
Compact Development Alternative					
Vehicles	55.75	60.30	576.13	138.93	29.88
Area sources	57.08	14.47	208.47	31.48	30.30
Total	112.83	74.77	784.60	170.41	60.18
Jobs Emphasis Alternative					
Vehicles	75.84	82.58	788.58	190.18	40.91
Area sources	94.42	23.99	370.86	56.31	54.2
Total	170.26	106.57	1159.44	246.49	95.11
Planning Commission Environmental Review Alternative					
Vehicles	63.82	69.8	664.58	160.67	34.55
Area sources	60.25	16.45	235.69	35.54	34.21
Total	124.07	86.25	900.27	196.21	68.76
Source: CMCA, 2010 and URBEMIS 7 (See Appendix 5.7A)					
Notes:					
1. For comparison with 2010 SJVUAPCD thresholds of significance, only. Estimate applies emission factors for 2010 which may not be representative of emissions associated with motor vehicles and appliances in 2050.					

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Policies

- AR-1.0 Source regulation.** The City shall review development projects using criteria established by the San Joaquin Valley Unified Air Pollution Control District in order to minimize future increases in vehicle travel and to assist in implementing appropriate indirect source regulations adopted by the Air Pollution Control District.
- AR-1.2 APCD cooperation.** The City shall work with the San Joaquin Valley Unified Air Pollution Control District to ensure the earliest practicable attainment and subsequent maintenance of federal and state ambient air quality standards.
- AR-1.3 CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure

early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.

- AQ-1.4 Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AQ-1.5 Cumulative impacts.** The City shall identify the cumulative transportation and air quality impacts of all general plan amendments approved during the previous year.
- AQ-1.6 Innovative strategies.** The City shall encourage innovative mitigation measures to reduce air quality impacts by coordinating with the District, project applicants, and other interested parties.
- AQ-1.7 Neighboring jurisdictions.** The City shall work with neighboring jurisdictions and affected agencies to address cross-jurisdictional and regional transportation and air quality issues.
- AQ-1.8 Technology for air quality mitigation.** The City shall support investment in cost-effective multi-use modeling and geographic information system technology.
- AQ-1.9 Air quality and planning.** The City shall consider air quality when planning the land uses and transportation systems to accommodate the expected growth in this community.
- AQ-1.10 Transportation projects.** The City shall ensure that all transportation improvement projects submitted for inclusion in regional transportation plans (RTP, RTIP, CMP, etc.) shall be consistent with the air quality goals and policies of the General Plan.
- AQ-1.11 Consultation with transit providers.** The City shall consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.
- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.
- AQ-1.13 Caltrans.** The City shall work with Caltrans and the Regional Transportation Planning Agency to minimize the air quality, mobility, and social impacts of large scale transportation projects on existing neighborhoods.
- AQ-1.14 Public education.** The City shall work to improve the public's understanding of the land use, transportation, and air quality link.
- AQ-1.15 Support for education.** The City shall support the efforts of local public and private groups that provide air quality education programs.

- AR-2.1 Trip reduction programs.** The City shall promote the implementation of innovative employer-based trip reduction programs for employees.
- AR-2.2 City fleet vehicles.** The City shall consider replacing or converting conventional fuel vehicles to clean fuel vehicles as rapidly as feasible.
- AR-2.3 Teleconferencing.** The City shall support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.
- AR-2.4 Teleconferencing centers.** The City shall work to establish public/private partnerships to develop satellite and neighborhood work centers for telecommuting.
- AR-2.5 Commute reduction.** The City shall promote the expansion of employment opportunities in Patterson to reduce the volume and distance of home-to-work commute trips by motor vehicle.
- AR-3.1 Priority to existing roadways.** The City shall consider measures to increase the capacity of the existing road network prior to constructing more capacity (additional lanes, new freeways, etc.).
- AR-3.2 Promote alternate modes of travel.** The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.
- AR-3.3 Park and Ride.** The City shall plan park and ride lots at suitable locations serving long distance and local commuters.
- AR-3.4 Intersection design.** Major intersections shall be designed to minimize situations (such as long vehicle delays) which can adversely affect localized air quality.
- AR-5.2 Roadways.** The City shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.
- AR-5.3 City maintained roads.** The City shall reduce PM10 emissions from City/County maintained roads to the maximum extent feasible.
- AR-6.1 Energy efficient design.** The City shall work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.

AR-6.2 Energy conservation standards. The City shall cooperate with the local building industry, utilities and the District to promote enhanced energy conservation standards for new construction.

AR-6.3 Vehicle idling reduction. The City shall implement circulation improvements that reduce vehicle idling.

Implementation Measures

AR-1 Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.

AR-2 Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.

Additional Mitigation

AR-8 The following measures shall be incorporated into the design of projects to be constructed within the City of Patterson to minimize operational emissions:

- Bike racks shall be provided at proposed commercial land uses and schools, at a minimum rate of one bike rack space per 20 vehicle parking spaces;
- Non-residential projects shall include facilities for bike commuters including showers, lockers and changing space.
- Multi-unit residential projects shall include long-term bike parking facilities (locker, locked room or standard bike rack under surveillance);
- Bike lanes (Class II) shall be provided on all arterials and linked to a regional bikeway network;
- Sidewalks shall be provided on all roadways to facilitate pedestrian access to land uses;
- New roads and major roadway improvements shall provide adequate roadway widths to safely accommodate buses and provide bus turn-outs and shelters as needed to serve proposed commercial and industrial land uses, and schools;
- Commercial projects shall charge for parking (if determined to be feasible by the City Council) to entice use of the transit system;
- Parking lots shall provide pedestrian pathways that connect to transit facilities;
- Facilities for charging electric vehicles shall be provided as an amenity for residential land uses;
- Electrical outlets shall be provided to facilitate use of electrical landscape maintenance equipment;
- Residential units shall be pre-wired with internet cables/lines to facilitate telecommuting;
- Wood-burning heaters and fireplaces shall be prohibited; and
- Energy conservation measures shall be implemented to exceed Title 24 requirements, and may include reflective roofing materials, energy efficient lighting, appliances, heating and cooling systems, use of natural lighting (skylights or solar tubes), and use of awnings and overhangs.

Although the mitigation provided by the recommended policies and implementation measures, and on-site emissions reductions and off-site emissions reductions required by the District's Indirect Source Rule (described in the Regulatory Setting), as well as the recommended additional mitigation will help reduce emissions associated with development accommodated by the 20-year and 40-year growth boundaries for each Equal-Weight Alternative, operational emissions will remain **significant and unavoidable**.

Consistency with Population Projections Used in the 2007 Extreme Ozone Attainment Demonstration Plan

Impact 5.7-4 The Compact Development, Jobs Emphasis and PC Environmental review Alternatives would allow for population growth that will exceed projections assumed in the 2007 Extreme Ozone Attainment Demonstration Plan and potentially conflict with particulate matter reduction measures. This inconsistency could obstruct the SJVUAPCD's ozone attainment strategy and particulate matter (PM10 and PM2.5) attainment efforts. This impact is considered potentially significant.

Three criteria are typically used to determine consistency with air quality plans:

1. *Determination that the air quality plan is being implemented:*

The Extreme Ozone Attainment Demonstration Plan was approved by the ARB in 2005 and has been implemented by the SJVAPCD;

2. *The project must be consistent with the growth assumptions of the air quality plan:*

Growth factors used in the Extreme Ozone Attainment Demonstration Plan to estimate future emissions inventories were provided by regional transportation planning agencies, including the Stanislaus Council of Governments (StanCOG), which projected a 2030 County population of 821,963, which is the projection used in the draft 2010 Regional Transportation Plan. According to staff of the Council of Governments¹⁹ the 2010 RTP assumes a population for Patterson of 39,067 by the 2030 which less than the 2030 populations accommodated by the 20-year growth boundaries of each Equal-Weight Alternative.

Table 5.7-13 compares existing (2009) and projected 2030 populations for each Equal-Weight Alternative with the 2030 population adopted by the Stanislaus Council of Governments for the 2011 Regional Transportation Plan. As seen in Table 5.7-13, each of the Equal-Weight Alternatives will accommodate a higher population for the City of Patterson by 2030 than the population being used by StanCOG and by the SJUAPCD in the Extreme Ozone Attainment Demonstration Plan.

¹⁹ Mat Fell, Senior Planner, Merced County Association of Governments

Table 5.7-13: Existing and Projected Population

Alternative	Existing (2009) ¹	2030 Population ²	StanCOG 2030 Population Projection for Patterson ³	Difference
Compact Development	21,229	46,360	39,067	-7,293
Jobs Emphasis	21,229	47,831	39,067	-8,764
PC Env. Review Plan	21,229	64,389	39,067	-25,322
Notes:				
1. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009				
2. CMCA, 2009				
3. December 9, 2009 StanCOG Population and Employment Projections, Totals Less Growth In Unincorporated County from Measure E.				

3. *The project must incorporate all reasonably available and feasible air quality control measures:*

The Draft Policy Document recommends a range of policies and programs aimed at reducing air quality impacts associated with each of the Equal-Weight Alternatives (see below).

The Equal-Weight Alternatives are consistent with criteria 1. and 3., but will exceed the population projections used by the District in the Ozone Attainment Plan. Therefore, each of the Equal-Weight Alternatives are inconsistent with the Extreme Ozone Attainment Demonstration Plan. This is considered a **significant and unavoidable impact**.

Draft Policy Document Response

The recommended policies and implementation measures discussed under impact 5.7-3 will help minimize air quality impacts associated buildout under each of the Equal-Weight Alternatives. However, the population accommodated by each of the Equal-Weight Alternatives for the 20-year growth boundary will exceed the population assumptions used by the Extreme Ozone Attainment Demonstration Plan. Therefore, this impact is considered **significant and unavoidable** for all three alternatives.

Additional Mitigation

None available.

Carbon Monoxide Hotspots

Impact 5.7-5 The Compact Development, Jobs Emphasis and PC Environmental Review Alternatives would allow continued growth in population, housing, and jobs that would increase traffic volumes on local roadways. This would result in elevated CO emissions from motor vehicle congestion that could expose sensitive receptors to elevated CO concentrations. This is considered a potentially significant impact.

The District's Guide for Assessing and Mitigating Air Quality Impacts indicates projects would have no potential to create a violation of the CO standard unless one or more intersections would operate at level of service E or F, or substantially worsen intersections already operating at level of service F. The reader is referred to the discussion under impacts 5.6-1, 5.6-3 and 5.6-5 and to Tables 5.6-8, 5.6-11 and 5.6-14 in section 5.6 Transportation which provides a summary of future intersection Levels of Service for Study Area intersections for each Equal-Weight Alternative for the 20-year growth boundaries. As shown on these tables, development accommodated by each of the Equal-Weight Alternatives would result in traffic congestion (level of service E or F) at 18 of the 23 intersections studied by the year 2030. Implementation of intersection improvements recommended under impacts 5.6-1, 5.6-3 and 5.6-5 would result in levels of service for each intersection of LOS D or better for each of the intersections studied.

CO monitoring in Modesto indicates that the highest 8-hour ambient concentration is typically less than 3ppm, with lower concentrations expected in Patterson. Based on these low ambient CO concentrations and recommended traffic mitigation, project-related traffic congestion is not expected to result in CO concentrations exceeding State standards at any of the study area intersections for both the 20-year and 40-year growth boundaries.

However, none of the roadway or intersection improvements listed under impacts 5.6-1, 5.6-3 and 5.6-5 are fully funded and guaranteed. Moreover, several of the intersections fall under the jurisdiction of other agencies where approval for improvements also cannot be guaranteed. For these reasons, intersection levels of service below LOS D are possible which in turn could result in carbon monoxide hot spots. Accordingly, potential impacts associated with carbon monoxide hot spots are **considered significant and unavoidable**.

Policy Document Response

Implementation of the measures recommended under impact 5.6-1, 5.6-3 and 5.6-5 of section 5.6 Transportation, together with the policies and implementation measures recommended under impact 5.7-3 will reduce potential CO impacts at intersections to less than significant. However, since none of the roadway or intersection improvements listed under impacts 5.6-1, 5.6-3 and 5.6-5 are fully funded and guaranteed, intersection levels of service below LOS D are possible which in turn could result in carbon monoxide hot spots. Accordingly, potential impacts associated with carbon monoxide hot spots are **considered significant and unavoidable**.

Additional Mitigation

None available.

Cumulative Impacts

Cumulative Setting

The cumulative setting for air quality impacts includes the area governed by the SJUAQMD Extreme Ozone Demonstration Plan, in addition to the General Plan Study Area and regional development in the vicinity of the City including the Diablo Grande Specific Plan and the West Park Specific Plan.

Climate Change

Impact 5.7-6 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternative as well as the Compact Growth Alternative within the 20-year growth boundaries will result in an increase in GHG emissions over existing conditions (2009) that may exceed the reduction targets established for the years 2020 and 2050. This impact is considered cumulatively considerable.

Each of the Equal-Weight Alternatives will result in an increase in population, housing, commercial and industrial development, vehicle trips, and solid waste generation that would generate additional GHGs through fuel combustion, electricity usage and other sources. The GHG reduction targets established by AB 32 and Executive Order S-03-05 are as follows:

- By 2010, reduce greenhouse gas emissions to 2000 levels;
- By 2020 reduce greenhouse gas emissions to 1990 levels (or 15% below 2010 levels);
- By 2050 reduce greenhouse gas emissions to 80% of 1990 levels.

According to the Climate Change Scoping Plan²⁰ prepared by the California Air Resources Board and adopted in December, 2008, reducing greenhouse gas emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 15 percent from today's levels. Accordingly, reducing the City's 2009 GHG emissions by 15 percent will be assumed to achieve the 1990 GHG emission level required by AB32, as described previously in the Standards of Significance for Climate Change. For 2050, Executive Order S-3-05 establishes a reduction target of 80% below 1990 levels. For purposes of this analysis, the 2050 reduction target is assumed to be a 35% reduction from the 2009 baseline emissions.

Table 5.7-14 provides a projection of future GHG emissions associated with each Equal-Weight Alternative for the year 2020 (the target date established by AB32), the year 2030 (the timeframe of the 20-year growth boundaries for each Equal-Weight Alternative) and the year 2050 (buildout). The forecast is divided among five sectors:

- Residential
- Commercial and Industrial
- Transportation and
- Solid Waste
- Construction

²⁰ California Air Resources Board Climate Change Scoping Plan, December 2008, page ES-1.

This forecast assumes a continuation of existing GHG emission rates and no reductions associated with measures that may be implemented by either the City or the State to reduce emissions (e.g., “Business As Usual”). The assumptions and methodologies used to derive these data are provided in Appendix 5.7B and summarized in Table 5.7-10.

Table 5.7-14: Year 2020, 2030 and Buildout GHG “Business As Usual” Emissions Forecasts By Sector for Each Equal-Weight Alternative (Metric Tons CO₂ Equivalent)

Sector	Baseline (2009) GHG Emissions ¹	2020 GHG Emissions ²			2030 GHG Emissions			Buildout GHG Emissions ⁵ (2050)		
		Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review
Residential	34,696	61,109	62,722	79,979	87,522	90,748	125,261	109,695	127,941	147,799
Commercial/Industrial	69,616	138,862	157,890	190,262	208,107	246,163	310,908	240,502	268,957	265,699
Transportation	179,885	299,572	379,570	321,932	419,259	579,254	463,979	598,187	794,996	673,828
Waste	2,807	4,469	4,566	5,661	6,130	6,324	8,514	7,604	8,816	10,031
Construction	491	491	491	491	491	491	491	491	491	491
Total:	287,495	504,503	605,239	598,325	721,509	922,980	909,153	956,479	1,201,201	1,097,848
Increase Compared to 2009 Baseline	--	+217,008	+317,744	+310,830	+434,014	+635,485	+621,658	+668,984	+913,706	+810,353
Percent Change Compared to 2009 Baseline	--	+175%	+210%	+208%	+250%	+321%	+316%	+332%	+417%	+381%
Target Reduction From 2009 Baseline ⁴	--	-15%	-15%	-15%	-15%	-15%	-15%	-35%	-35%	-35%

Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report, Table V-3.

Notes:

1. Please refer to Table 5.7-4.
2. Assumes one-half of additional development accommodated by each 20-year growth boundary is developed by 2020.
3. Business As Usual assumes a continuation of existing GHG emission rates and no reductions associated with measures that may be implemented by either the City or the State to reduce emissions.
4. AB32 requires a 15% reduction of current emissions by the year 2020.
5. Executive order S-3-05 establishes an emission reduction target of 80% below 1990 levels, or 35% below baseline (2009) levels.

As shown in Table 5.7-14, GHG emissions for the year 2020 range from a low of 217,007 metric tons CO₂e for the Compact Development Alternative to a high of 317,744 MT CO₂e for the Jobs Emphasis Alternative. Each of these projections represents a significant increase over the 2009 baseline of 287,494 MT CO₂e for year 2020, which exceeds the reduction target of 15% required by AB32.

In addition, GHG emissions projected for the year 2050 range from a low of 668,984 metric tons CO₂e for the Compact Development Alternative to a high of 913,706 MT CO₂e for the Jobs Emphasis Alternative. Each of these projections represents a significant increase over the 2009 baseline of 287,494 MT CO₂e for year 2050, which exceeds the reduction target of 35% required by Executive Order S-3-05. This impact is considered **cumulatively considerable**.

Draft General Plan Policy Response

The Draft Policy document recommends a wide range of policies and implementation measures aimed at reducing the effect of future development on climate change, as summarized below.

Land Use

The Draft Policy Document recommends a development strategy (policy LU-1.1) aimed at the application of Smart Growth Principles (policy CD-1.1) for the creation of complete neighborhoods in which the day-to-day needs of residents are provided within walking or biking distance. The land use plans for each Equal-Weight Alternative provide for the development of housing and job-generating land uses to better balance the ratio of jobs to housing, thus reducing home to work commute trips, and the provision of shopping opportunities aimed at reducing out-of-town trips.

Alternate Forms of Transportation

The Draft Policy Document provides policies and implementation measures that promote and facilitate alternate forms of transportation (policies CD-3.2, T-2.1, T-2.2, T-2.3, T-3.1, T-3.2, T-7.3, AR-2.1, AR-2.5, AR-3.2)).

Protection of GHG Sinks

The role of agriculture, and especially orchards that have the capacity to sequester greenhouse gases, is supported and encouraged by policies of the Draft Policy Document (NR-2.1, NR-2.2, NR-2.4, implementation measure NR-4).

Energy Use

The Draft Policy Document recommends several policies and implementation measures aimed at facilitating the efficient use of energy and the use of alternative fuels (policies NR-5.1, NR-5.2, NR-5.3, NR-6.1, NR-6.2, NR-6.3, NR-6.4, NR-6.5, AR-6.1, AR-6.2).

Climate Change

Lastly, the Draft Policy Document addresses the City's role in helping to reduce greenhouse gas emissions (policies AR-7.1, AR-7.2, AR-7.4, implementation measures NR-8, NR-9, NR-11).

Policies

LU-1.1 Development strategy. The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of "complete" neighborhoods, incorporating the following characteristics:

- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
- b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- e. Short blocks with a substantial tree canopy shading the street and sidewalk;
- f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
- g. A sense of personal safety;
- h. Elements that foster the sustainable use of scarce or non-renewable resources.
- i. Mixed-use development in which complementary uses are placed on a single building site one above the other (vertically) or in close proximity (horizontally).

LU-1.10 Managing the relationship between jobs and housing. The City shall monitor residential and non-residential development and encourage adjustments as necessary in land use designations and the rate of project approvals to promote a reasonable citywide balance between new employment-generating development and housing development and to minimize traffic impacts.

LU-2.3 Neighborhood centers. Generally, higher density housing shall be located in areas served by the full range of urban services, within walking distance of neighborhood shopping areas.

LU-7.4 Clean industries. The City shall promote the development of clean industries that do not pose health risks associated with water and air pollution or potential leaks or spills.

CD-1.1 Smart Growth principles. The City will continue to require new development to incorporate the principles of ‘Smart Growth’, including:

- A mix of housing products and densities serving the broadest range of households, incomes and ages;
- A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- Short blocks with a substantial tree canopy shading the street and sidewalk;
- Connectivity to surrounding neighborhoods, regional retail centers and employment;
- A sense of personal safety;
- Elements that foster the sustainable use of scarce or non-renewable resources.

CD-1.8 Green building practices. The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of all private buildings and projects, including:

- Land planning and design techniques that preserve the natural environment and minimize disturbance of the land.
- Site development to reduce erosion, minimize paved surfaces and runoff and protect vegetation, especially trees.
- Water conservation indoors and outdoors.
- Energy efficiency in heating/cooling systems, appliances, lighting and the building envelope.
- Selection of materials based on recyclability, durability and the amount of energy used to create the material.
- Waste reduction, reuse and recycling during construction and throughout the life of the project.
- Other new aspects of green design and construction included in LEED™ or other certification programs.
- Control nighttime lighting to lower energy use, reduce glare, and prevent illumination of the night sky.

- CD-3.2 Neighborhood design.** The City shall promote the creation of well-defined residential neighborhoods in newly-developing areas. Each of these neighborhoods should have a clear focal point, such as a park, school, or other open space and community facility, and should be designed to promote pedestrian convenience. To this end, the City shall encourage the use of existing Patterson neighborhoods, including the grid street system, as models for the planning and design of new residential neighborhoods.
- CD-4.1 Street trees.** The City shall endeavor to protect the urban forest created by mature trees in existing developed areas and in newly developing areas.
- ED-1.5 Economic sustainability.** The City shall work to attract and retain long-term, economically sustainable businesses.
- ED-3.1 Jobs-to-housing ratio.** The City shall maintain an adequate retail, business, and industrial land supply to meet a jobs-to-housing ratio of 1.0.
- ED-4.2 Infill development.** The City and/or its Redevelopment Agency shall encourage infill development that promotes downtown revitalization.
- T-2.1 Dial-a-ride.** The City shall work to assure that West Side Dial-a-Ride service is responsive to local needs.
- T-2.2 Bus transportation.** The City shall work with the County to maintain a van/minibus transportation system tailored to the needs of the elderly and disabled, which can be expanded in the future.
- T-2.3 Taxi service.** The City shall encourage the establishment of private taxi service in Patterson.

- T-3.1 Ridesharing.** The City shall encourage and support programs which will increase ridesharing.
- T-3.2 Park and ride lots.** The City shall cooperate with Caltrans in the development of park-and-ride facilities near Interstate 5.
- T-3.3 Rideshare coordination.** The City shall organize a voluntary ride-share coordination system for commuters.
- T-7.1 Safe pedestrian and bike pathways.** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its share of the costs for development of this pathway system.
- T-7.2 Pedestrian access.** All new development shall be reviewed to ensure safe pedestrian access is provided from the street, within parking areas and between development and surrounding neighborhoods.
- T-7.3 Bike routes.** The City shall establish a safe and convenient network of identified bicycle routes connecting residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.
- T-7.5 Include pathways in open space.** To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.
- T-7.6 Bike storage.** The City shall require the inclusion of bicycle parking facilities at all new major public facilities and commercial and employment sites and shall encourage large employers to provide showers for employees.
- T-7.11 Commuter rail service.** The City shall promote the establishment of commuter rail service between Patterson and the San Francisco Bay area and Sacramento.
- NR-2.1 Agricultural land preservation.** Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.
- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.

- NR-2.3 Greenbelt.** The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.
- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.
- NR-2.5 Regional farmland preservation.** The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.
- NR-2.6 Financial incentives.** The City shall support tax and economic incentives, at both the local and state levels, to enhance the economic competitiveness of agricultural exports.
- NR-2.7 Markets.** The City shall allow, encourage, and support local activities that strengthen the viability of agricultural markets, including farmers' markets, the on-site sale of produce, and special events that promote local agricultural products.
- NR-2.9 Williamson Act.** The City shall allow cancellation of Williamson Act contracts only if the City Council finds that cancellation is consistent with State law.
- NR-4.1 Outreach.** The City shall work with other agencies, citizen groups, and the public to encourage and promote the social, economic, environmental, and health benefits of adopting sustainable practices.
- NR-4.2 School curriculum.** The City shall encourage the Patterson Joint Unified School District (PJUSD) to integrate sustainability and environmental literacy into the academic curriculum.
- NR-4.3 Patterns of Development.** The City shall promote patterns of development that provide a complimentary range of land uses to serve the daily needs of nearby residents and minimize dependence on the automobile.
- NR-5.1 Fuel efficient vehicles.** The City encourage residents to drive electric, hybrid, or other fuel-efficient vehicle for personal transportation by marketing state and federal tax incentives in the community newsletter and on the City Website.
- NR-5.2 Fleet efficiency.** The City shall work toward establishing a minimum of 35 miles per gallon (mpg) fuel efficiency for the City vehicle fleet.
- NR-5.3 Alternate fuels.** The City shall work toward converting 100% of non-emergency City vehicles to electric, hybrid, flex-fuel, or alternative fuels. In addition, the City shall encourage the Parks & Recreation and Public Works Departments to replace gas-powered mowers and

other equipment with electric or hybrid models and to use biodiesel fuel (produced from waste oil) for diesel vehicles where possible.

- NR-6.1 Sustainable building practices.** The City shall encourage the use of sustainable, energy efficient construction techniques. The City will identify and remove regulatory or procedural barriers to implementing green building practices, such as updating codes, guidelines, and zoning, and will ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques.
- NR-6.2 Passive solar.** The City shall encourage passive solar design (passive heating and cooling) to avoid or minimize cooling needs through building orientation of all new development.
- NR-6.3 Renewable energy.** The City shall allow renewable energy projects in areas zoned for open space, where consistent with all of the elements of this General Plan, and other uses and values.
- NR-6.4 Co-generation.** The City shall promote and encourage co-generation projects for commercial and industrial facilities, provided they meet all applicable air quality standards and provide a net reduction in GHG emissions associated with energy production.
- NR-6.5 Renewable energy systems for City facilities.** The City shall install renewable energy systems at its facilities where feasible, including solar collection systems at municipal properties and waste-to-energy (methane recovery) systems at the waste water treatment plant.
- NR-6.6 Landscaping options.** The City shall evaluate existing landscaping and options to convert reflective and impervious surfaces to landscaping, and shall, as feasible, install or replace vegetation with drought-tolerant, low maintenance native species that can also provide shade and reduce heat-island effects.
- PR-1.3 Requirements for development.** New development shall be required to assist in meeting the City's standard of five acres per 1,000 residents. To this end, the City shall require all new development to dedicate land, dedicate improvements, pay in-lieu fees, or a combination of these determined acceptable by the City, to the maximum extent authorized by law.
- PR-1.14 Pedestrian/bicycle network.** The City shall pursue the development of a citywide network of pedestrian and bicycle pathways to integrate with existing and future regional, community, neighborhood, and, to the extent possible, pocket parks. (See the Circulation Element for more policies).
- PS-4.3 Waste-to-energy plant.** The City shall promote the continuing use of the Fink Road waste-to-energy plant and shall work with Stanislaus County to improve its capacity.

- AQ-1.12 Affordable housing access to alternate mode of travel.** The City shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.
- AR-2.1 Trip reduction programs.** The City shall promote the implementation of innovative employer-based trip reduction programs for employees.
- AR-2.2 City fleet vehicles.** The City shall consider replacing or converting conventional fuel vehicles to clean fuel vehicles as rapidly as feasible.
- AR-2.3 Teleconferencing.** The City shall support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.
- AR-2.4 Teleconferencing centers.** The City shall work to establish public/private partnerships to develop satellite and neighborhood work centers for telecommuting.
- AR-2.5 Commute reduction.** The City shall promote the expansion of employment opportunities in Patterson to reduce the volume and distance of home-to-work commute trips by motor vehicle.
- AR-3.2 Promote alternate modes of travel.** The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.
- AR-3.3 Park and Ride.** The City shall plan park and ride lots at suitable locations serving long distance and local commuters.
- AR-6.1 Energy efficient design.** The City shall work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.
- AR-6.2 Energy conservation standards.** The City shall cooperate with the local building industry, utilities and the District to promote enhanced energy conservation standards for new construction.
- AR-6.3 Vehicle idling reduction.** The City shall implement circulation improvements that reduce vehicle idling.
- AR-7.1 Climate Action Plan.** The City shall comply with the relevant provisions of State law (i.e. AB 32 and SB 375) to minimize the effect of citywide greenhouse gas emissions associated with buildout of the General Plan. This shall be achieved through the implementation of a Climate Action Plan.
- AR-7.2 Greenhouse gas reduction goal.** The City shall work with the Air Resources Board and the San Joaquin Valley Unified Air Pollution Control District to comply with statewide greenhouse

gas reduction goals as established in the Global Warming Solutions Act of 2006 (AB 32) for 2020, and subsequent goals.

- AR-7.3 Sustainable government buildings.** All new or renovated City buildings shall be designed and constructed to achieve Leadership in Energy and Environmental Design (LEED™) Silver rating requirements.
- AR-7.4 Greenhouse gas emissions from new development.** The City shall implement measures to reduce the emission of greenhouse gases from new development by:
- a. Discouraging auto-dependent patterns of development;
 - b. Promoting compact, mixed-use, pedestrian-friendly, and transit oriented development;
 - c. Promoting energy-efficient building design and site planning using either Build It Green and LEED Silver standards for residential and non-residential buildings, respectively; and
 - d. Working to improve the ratio of jobs to housing.
- AR-7.5 Passive solar heating.** To the extent feasible, the City shall require the orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain in warm seasons, enhance natural ventilation and effective use of daylight, and to maximize opportunities for the installation of solar panels.
- AR-7.6 Energy efficiency for low income residents.** The City shall partner with community service agencies and organizations to fund energy efficient projects for low income residents. Eligible projects include but are not limited to the installation of heating, ventilation, and air-conditioning systems, lighting, water heating equipment, and insulation and weatherization.
- AR-7.7 Waived permit fees.** The City shall waive building permit fees for projects that make an existing home or business more energy-efficient. Eligible projects include but are not limited to the installation of solar panels, tankless water heaters, and highly energy-efficient heating, ventilation, and air-conditioning systems.
- AR-7.8 Financing for energy-efficient improvements.** The City shall investigate options for providing low-interest financing for energy efficient improvements and solar system installation for residents. Such financing could take the form of long-term assessments on individual property tax bills.
- AR-7.9 Environmentally responsible government purchasing.** The City shall, in its purchasing of products, equipment, or services, give preference to those which reduce or eliminate indirect greenhouse gas emissions.
- AR-7.10 Life-cycle costing.** The City shall incorporate the method of life-cycle costing to determine the most energy-efficient equipment and systems for its buildings and operations.

AR-7.11 Methane recovery. The City shall investigate the implementation of a methane recovery system for its wastewater treatment plant.

Implementation Measures

- CD-1 The City shall implement the Community Design Guidelines and Downtown Physical Design Plan.
- T-3 The City shall prepare, adopt, and periodically update a long-term Capital Improvements Program (CIP) that includes traffic, pedestrian and bikeway improvements.
- T-4 The City shall prepare and adopt a traffic impact development fee program to pay for key improvements necessitated by new development, including transit.
- T-6 The City shall continue to investigate new technologies to help ensure the transportation system operates at the highest efficiency for the lowest cost.
- NR-3 The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program shall address at least the following:
- The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
 - Criteria for assessing the suitability of agricultural lands to be permanently protected.
 - Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are not limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism
- NR-8 The City shall, within 24 months of adoption of the General Plan, prepare and adopt a comprehensive Climate Action Plan that includes but is not limited to the following components:
- Strategies for public involvement and input;
 - A baseline inventory of greenhouse gas (GHG) emissions from all sources within the city;
 - Goals for reducing manmade greenhouse gas (GHG) emissions from community, municipal, and business activities.
 - Resiliency and adaptation programs to prepare for potential impacts of climate change, and provide a phased implementation plan to achieve these goals.
 - A greenhouse gas emissions reduction target of 15% percent below 2007 levels by 2020, consistent with California Assembly Bill 32, the Global Warming Solutions Act of 2006 (AB32) and the guidance provided in the associated California Air Resources Board Climate
 - Outline a strategy to achieve 1990 GHG levels by 2020 and an 80% reduction from 1990 GHG levels by 2050 in accordance with California State Executive Order S-3-05. A program of regular review of progress toward emissions reduction targets;

- A green building program that includes adoption of an ordinance which requires Build It Green certification for all new housing and LEED™ Silver certification for all non-residential buildings;
 - A renewable energy portfolio standard of 33% for both investor-owned and publicly-owned utilities.
- NR-9 The City shall prepare and adopt a Sustainability Plan to guide efforts by the City to enact and promote sustainable practices by the City and the community.
- NR-11 The City shall conduct individualized Energy Audits of all City-owned facilities and implement cost-effective retrofits.
- NR-12 The City shall establish, update, and maintain a Sustainability webpage on the City website.
- NR-14 The City shall consider amendments to the Zoning Regulations and relevant building codes and providing training for City staff regarding the incorporation of features which will reduce heat gain in new construction. Such revisions may include:
- Allowances for the construction of “green” roofs;
 - Standards for surface shading of paved areas such as parking lots;
 - Standards for the use of paving materials with an enhanced
 - solar reflective index (SRI);
 - Standards that provide for pervious pavement options.
- PR-6 The City shall pursue the development of a citywide network of pedestrian and bicycle pathways to integrate with existing and future regional, community, and neighborhood parks through the following:
- Implement recommendations in the 2001 Bicycle Transportation Master Plan; and
 - Update the Plan by 2010.

The policies and implementation measures recommended by the draft Policy Document, and those expected to be implemented by the State, are expected to alter current emissions trends and lead to lower emissions in the future than would result if “business as usual” trends were applied to each of the Equal-Weight Alternatives.

Table 5.7-15 provides an estimate of the potential reduction in GHG emissions associated with policies and programs recommended by the Draft Policy Document in addition to the GHG reduction value associated with programs expected to be implemented by the State between 2010 and 2020. The methodologies and assumptions used to derive the reductions for each policy are provided in Appendix 5.7B and summarized in Table 5.7-16. Emissions reductions have been calculated for those policies for which emission reduction methodologies have been previously established.

Table 5.7-16 estimates the net emissions for the years 2020 (the target year for 15% reductions prescribed by AB32), the year 2030 (the timeframe of the 20-year growth boundaries for each Equal-Weight Alternative) and 2050 (assumed buildout for each Equal-Weight Alternative, and the target year prescribed by Executive Order S-3-05).

As shown on Table 5.7-16, even with the potential reductions associated with recommended policies and programs of both the City and the State, the net GHG emissions associated with each Equal-Weight Alternative for the years 2020 and 2050 are expected to greatly exceed the GHG reduction targets for these years. Thus impacts to Climate Change of each Equal-Weight Alternative are considered **cumulatively considerable and significant and unavoidable**.

Additional Recommended Mitigation

None available to reduce the impact to a less than significant level.

Table 5.7-15: Reduction of Greenhouse Gas Emissions Associated
With Selected General Plan Policies and State Programs
(Metric Tons of CO₂ Equivalent)

Policy Number	2020 ⁸			2030			2050 (buildout)		
	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review
Energy Efficiency, Conservation and Production									
CD-1.8	-11,663	-13,975	-9,894	-23,326	-27,949	-19,787	-57,361	-73,492	-65,456
AR-7.6	-44	-46	-36	-88	-91	-71	-110	-128	-148
AR-7.8	-6,988	-7,957	-8,171	-13,975	-15,913	-16,342	-50,259	-56,776	-59,340
NR-14	-964	-1,101	-1,177	-1,928	-2,202	-2,353	-4,561	-5,166	-5,366
AR-7.5	-73	-91	-87	-145	-182	-173	-194	-222	-219
NR-1.10	-1	-1	-1	-1	-1	-2	-2	-2	-2
Sub-Total:	-19,732	-23,169	-19,364	-39,461	-46,338	-38,728	-112,487	-135,785	-130,530
Land Use									
AQ-1.12	-1,492	-2,473	-1,766	-2,984	-4,946	-3,532	-5,319	-7,779	-6,265
T-3.3	-11,735	-12,167	-16,795	-23,470	-24,334	-33,590	-44,123	-51,462	-59,450
CD-1.1	-6,943	-10,132	-8,785	-13,886	-20,264	-17,570	-22,417	-31,554	-27,506
ED-3.1	-18,564	-24,494	-18,027	-37,127	-48,987	-36,053	-51,760	-67,587	-51,197
Sub-Total	-38,734	-49,266	-45,373	-77,466	-98,532	-90,745	-123,620	-158,383	-144,417
Transportation									
T-7.9	-1	-1	-2	-2	-2	-3	-3	-3	-4
T-7.1	-5,975	-8,788	-12,756	-11,950	-17,575	-25,511	-26,742	-47,767	-52,417
T-7.6	-455	-655	-522	-909	-1,310	-1,043	-1,367	-1,857	-1,573
T-7.2	-4,351	-7,213	-5,151	-8,702	-14,426	-10,302	-15,514	-22,690	-18,272
T-1.12	-3,214	-4,441	-3,557	-6,428	-8,881	-7,113	-31,157	-41,409	-35,097
T-15	-2,571	-3,553	-2,846	-5,142	-7,105	-5,691	-7,478	-9,938	-8,423
Sub-Total:	-16,567	-24,650	-24,832	-33,134	-49,298	-49,663	-82,261	-123,664	-115,787
Solid Waste									
PS-4.1	-1,592	-1,642	-2,211	-3,183	-3,284	-4,421	-6,873	-7,968	-9,066
Sub-Total:	-1,592	-1,642	-2,211	-3,183	-3,284	-4,421	-6,873	-7,968	-9,066
State Programs									
Renewable Portfolio Standard ³	-16,960	-18,226	-22,097	-33,920	-36,452	-44,193	-48,066	-102,756	-138,584
Pavley (ABI493) ⁴	-60,666	-81,278	-63,505	-121,331	-162,556	-127,010	-175,876	-228,853	-190,233
Low Carbon Fuel Standard ⁵	-5,460	-7,315	-5,716	-10,920	-14,630	-11,431	-35,175	-32,511	-25,402
Sub-Total:	-83,086	-106,819	-91,317	-166,171	-213,638	-182,634	-259,117	-364,120	-354,219
Total Reductions:	-159,709	-205,545	-183,096	-319,415	-411,090	-366,191	-584,358	-789,920	-754,019
	504,503	605,239	598,325	721,509	922,980	909,153	956,479	1,201,201	1,097,848

Table 5.7-15: Reduction of Greenhouse Gas Emissions Associated
With Selected General Plan Policies and State Programs
(Metric Tons of CO₂ Equivalent)

Policy Number	2020 ⁸			2030			2050 (buildout)		
	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review
Projected "Business As Usual" Emissions ⁶ :									
Net Change In Emissions From Business As Usual	+344,794	+399,694	+415,229	+402,094	+511,890	+542,962	+372,157	+411,281	+343,829
Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report, Table V-8 (see Appendix 5.7B)									

Notes for Table 5.7-15

1. The reader is referred to Appendix 5.7B for a complete description of assumptions and methodologies used to derive the emissions reductions shown for the year 2030 in this table.
2. The reader is referred to the 2010 Draft Policy Document for a complete listing of the policies referenced.
3. Established in 2002 in Senate Bill 1078, the Renewable Portfolio Standard (RPS) program requires electricity providers to increase the portion of energy that comes from renewable sources to 20 percent by 2010 and to 33 percent by 2020.
4. Assembly Bill 1493 (Pavley), signed into law in 2002, will require carmakers to reduce greenhouse gas emissions from new passenger cars and light trucks beginning in 2011.
5. To reduce the carbon intensity of transportation fuels, the California Air Resources Board is developing a Low Carbon Fuel Standard (LCFS), which would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 as called for by Executive Order S-01-07.
6. The reader is referred to Table 5.7-4.
7. Projected Business As Usual Emissions in Metric Tons of CO₂ Equivalent minus reductions associated with draft Policy Document policies and State programs.
8. Emissions for 2020 are assumed to be one-half the emissions for 2030.

**Table 5.7-16: Summary of 2020, 2030 and Buildout
Greenhouse Gas Emissions For
Each Equal-Weight Alternative Based on Assumptions for GHG Reduction
Associated With Draft General Policies and State Programs
(Metric Tons of CO₂ Equivalent)**

Summary Topic	2020			2030			2050 (buildout)		
	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review	Compact Development	Jobs Emphasis	PC Env Review
Projected "Business As Usual" Emissions ¹ :	504,503	605,239	598,325	721,509	922,980	909,153	956,479	1,201,201	1,097,848
Total Reductions ² :	-159,709	-205,545	-183,096	-319,415	-411,090	-366,191	-584,358	-789,920	-754,019
Net Change In Emissions From Business As Usual ³	+344,794	+399,694	+415,229	+401,602	+511,397	+468,599	+371,631	+410,791	+343,337
2009 Baseline Emissions ⁴	287,495	287,495	287,495	287,495	287,495	287,495	287,495	287,495	287,495
Percent Increase Over Baseline	+20%	+39%	+44%	+40%	+78%	+62%	+29%	+43%	+20%
Reduction Target	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-35% ⁶	-35% ⁶	-35% ⁶
Difference Between Target Percentage Reduction and Achieved Reduction	+35%	+54%	+59%	+55%	+93%	+77%	+64%	+78%	+55%

Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report, Table V-8 (see Appendix 5.7B)

Notes:

1. Projected Business As Usual Emissions in Metric Tons of CO₂ Equivalent minus reductions associated with draft Policy Document policies and State programs.
2. The reader is referred to Table 5.7-12. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B on Table V-3.
3. The reader is referred to Table 5.7-12. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B.
4. The reader is referred to Table 5.7-4. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B.
5. For the year 2020 the emissions reduction target is assumed to be 85% of the 2009 baseline (a 15% reduction).
6. For the year 2050, the emissions reduction target is assumed to be 65% of the 2009 baseline (a 35% reduction).

Lower Carbon Future Land Use Alternative

In September, 2009, the California Attorney General published guidelines in the form of “Frequently Asked Questions” for the analysis of potential climate change impacts in CEQA documents prepared for general plan updates. The guidelines state that a city should, if feasible, evaluate at least one alternative that would ensure that the community contributes to a lower carbon future. The guidelines provide examples of attributes that would contribute to a lower carbon future such as:

- Higher density development that focuses growth within existing urban areas;
- Policies and programs to facilitate and increase biking, walking, and public transportation and reduce vehicle miles traveled;
- The creation of “complete neighborhoods” where local services, schools, and parks are within walking distance of residences;
- Incentives for mixed-use development;
- In rural communities, creation of regional service centers to reduce vehicle miles traveled;
- Energy efficiency and renewable energy financing;
- Policies for the preservation of agricultural and forested land serving as carbon sinks;
- Requirements and ordinances that mandate energy and water conservation and green building practices; and

Figure 5.7-2 illustrates the distribution of land uses associated with a Lower Carbon Future Alternative; the development holding capacity is provided in Table 5.7-17 in comparison to the Equal-Weight Alternatives. For purposes of this analysis, the Lower Carbon Future Alternative is identical to of the Compact Development Alternative with the following changes:

- The 20-year growth boundary has been reduced to coincide with the City’s currently adopted sphere of influence;
- The 40-year growth boundary has been reduced to coincide with the previous 20-year growth boundary;
- Land within the sphere of influence but outside the current City limits is designated *Neighborhood Village* which allows for an intensification of development over the existing designation of Low Density Residential;
- A 40-year growth boundary is shown with land designated *Neighborhood Village*, *General Commercial* and *Light Industrial* development.

As shown in Table 5.7-17, development accommodated within the 40-year growth boundary of the Lower Carbon Future Alternative is roughly equal to the development holding capacity of the 20-year growth boundary of the Compact Development Alternative. The Low Carbon Future Alternative accommodates a higher population than the 1992 General Plan, but less than the Compact Development Alternative at the 40 year buildout.

Table 5.7-18 compares future greenhouse gas emissions associated with the Lower Carbon Future Alternative with those associated with the Equal-Weight Alternatives for the years 2030 and buildout (2050). As shown in Table 5.7-18 the Lower Carbon Future Alternative will result in lower overall greenhouse emissions in 2030 and 2050 than any of the Equal-Weight Alternatives. However, the reduction targets prescribed by AB 32 and Executive Order S-01-07 will not be met. As a result, this alternative will result in impacts to climate change that are **cumulatively considerable and significant and unavoidable** with the application of the policies and measures described under impact 5.7-6.

The Lower Carbon Future Alternative has not been afforded the same level of quantitative analysis as that provided for the Equal-Weight Alternative in sections 5.1 through 5.15 of this EIR. Rather, it is analyzed to the standard CEQA alternative level and offered to provide decision-makers with an alternative that meets most of the basic objectives of the general plan update and results in lower future emissions of greenhouse gases consistent with the guidance provided by the Attorney General. The Lower Carbon Future Alternative is also considered in the comparison of alternatives provided in section 8.0-Alternatives.

Table 5.7-17: Summary Development Holding Capacity of Alternatives

Attributes	Lower Carbon Future		Compact Development		Jobs Emphasis		PC Env. Review Plan	
	Total in 20 Years	Total in 40 Years (Buildout)	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	10,950	15,153	15,153	18,992	15,711	22,151	21,687	25,589
Population	35,000	46,360	46,360	57,510	47,831	66,673	64,389	75,863
Commercial Floor Area (sq.ft.)	4,719,325	6,081,011	6,081,011	7,586,263	10,350,468	12,639,691	6,346,810	8,566,036
Industrial Floor Area (sq.ft.)	9,537,956	14,585,212	14,585,213	16,562,837	15,046,949	15,046,949	17,915,897	18,715,572
Services Floor Area (sq.ft.)	4,164,336	5,205,420	5,205,420	5,749,920	5,205,420	5,749,920	5,205,420	5,749,920
Jobs	17,193	21,491	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	1.13	1.42	1.42	1.34	1.69	1.30	1.19	1.13
Source: CMCA, 2009								

Figure 5.7-2 Lower Carbon Future Alternative

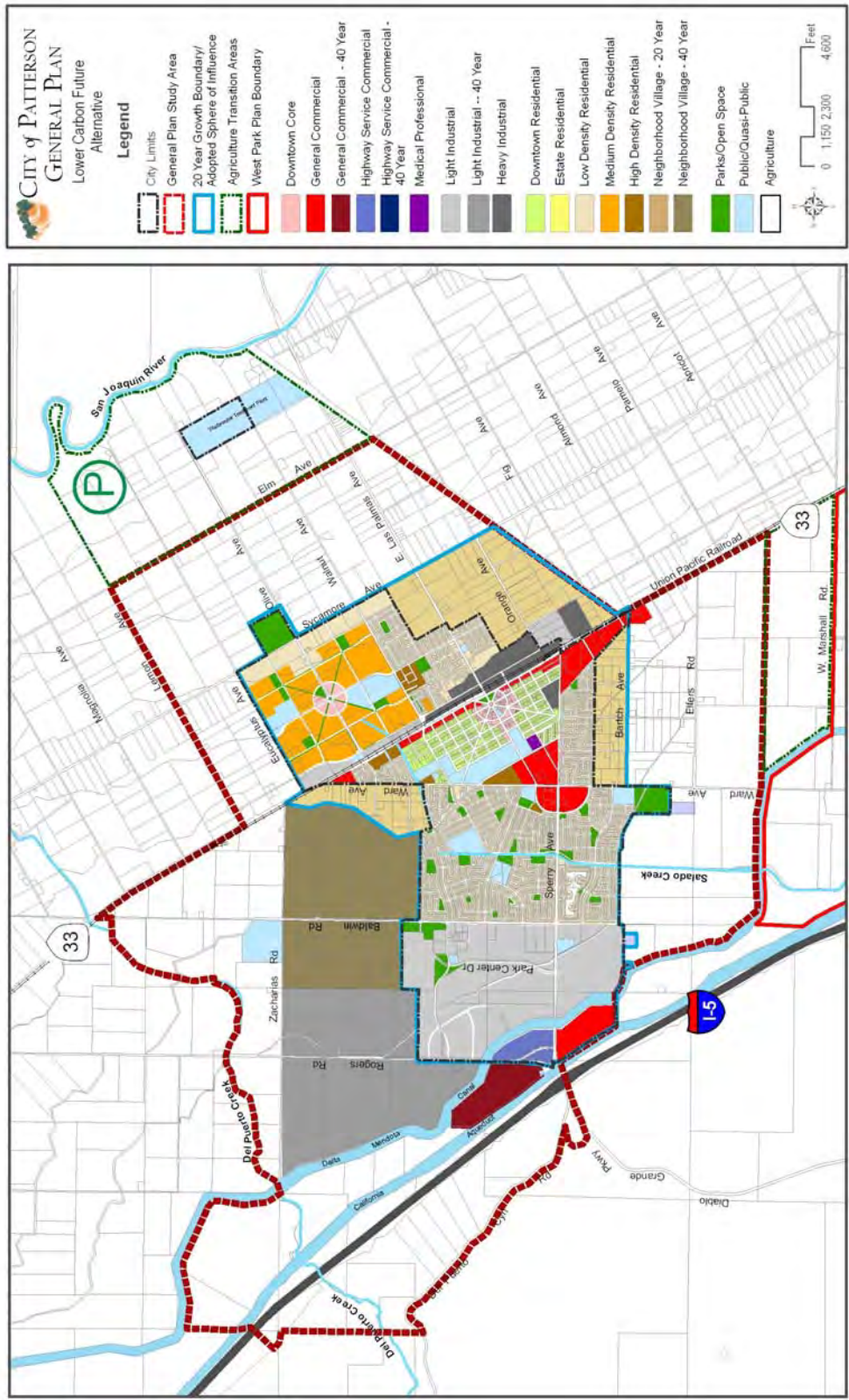


**Table 5.7-18: Summary of 2030 and Buildout
Greenhouse Gas Emissions For Lower Carbon Future Alternative And
Equal-Weight Alternatives
(Metric Tons of CO₂ Equivalent)**

Summary Topic	2030				2050 (buildout)			
	Lower Carbon Future ⁷	Compact Development	Jobs Emphasis	PC Env Review	Lower Carbon Future ⁸	Compact Development	Jobs Emphasis	PC Env Review
Projected “Business As Usual” Emissions ¹ :	504,503	721,509	922,980	909,153	721,509	956,479	1,201,201	1,097,848
Total Reductions ² :	-159,709	-319,415	-411,090	-366,191	-319,415	-584,358	-789,920	-754,019
Net Change In Emissions From Business As Usual ³	+344,794	+401,602	+511,890	+542,962	+401,602	+372,157	+411,281	+343,829
2009 Baseline Emissions ⁴	287,495	287,495	287,495	287,495	287,495	287,495	287,495	287,495
Percent Increase/(Reduction)	20%	40%	78%	62%	40%	29%	43%	20%
Reduction Target	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-35% ⁶	-35% ⁶	-35% ⁶
Difference Between Target Percentage Reduction and Achieved Reduction	+35	+55	+93	+77	+55	+64	+78	+55

Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report, Table V-8 (see Appendix 5.7B)

Notes:

1. Projected Business As Usual Emissions in Metric Tons of CO₂ Equivalent minus reductions associated with draft Policy Document policies and State programs.
2. The reader is referred to Table 5.7-12. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B on Table V-3.
3. The reader is referred to Table 5.7-12. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B.
4. The reader is referred to Table 5.7-4. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B.
5. For the year 2020 the emissions reduction target is assumed to be 85% of the 2009 baseline (a 15% reduction).
6. For the year 2050, the emissions reduction target is assumed to be 65% of the 2009 baseline (a 35% reduction).
7. Year 2030 GHG emissions are assumed to be equivalent to year 2020 emissions from the Compact Development Alternative.
8. Year 2050 GHG emissions are assumed to be equivalent to the year 2030 emissions from the Compact Development Alternative.

Risk Associated With Climate Change

Impact 5.7-7 Property and persons accommodated by development associated with the Compact Development Jobs Emphasis and Planning Commission Environmental Review Alternatives within the 20-year and 40-year growth boundaries may be subject to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts resulting from climate change. This impact is considered cumulatively considerable.

Existing and new development and the natural environment in Patterson will be subject to climate change impacts resulting from past, present, and future GHG emissions, regardless of the success of local, State, national, or international efforts in reducing future GHG emissions. Due to the existing concentrations of GHG emissions in the atmosphere and the inevitable additional emissions before GHG reductions plans provide reductions, a known amount of warming in the lower atmosphere and consequent changes in historical climate patterns will inevitably occur²¹.

Changes to the City's agriculture, water supplies, flooding, wildfire potential, environmental health, air quality and other areas are reasonably foreseeable, although not quantifiable in some aspects at present. New development allowed by General Plan 2030 could place persons and property at higher levels of risk to climate change effects if it does not anticipate reasonably foreseeable changes in environmental conditions. Without further planning, current requirements may provide inadequate protection against adverse physical impacts and may not anticipate changed conditions resulting from climate change.

A recent report from the CEC uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges with temperature increases from 3.0 to 10.5 degrees Fahrenheit²². The report also analyzes impacts associated with a specific warming scenario of 2.2 degrees Fahrenheit, the level of warming that would result if industrialized nations reduced their emissions by 30 percent below 1990 levels before 2020, and the level of warming that guides numerous adopted and proposed policies. The report presents analysis of future climate in California under each warming range.

Based on this report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California, including impacts related to public health, water resources, flooding, agriculture, forests and ecosystems, sea-level rise, growing energy demands, and vulnerability to the Sacramento-San Joaquin Delta. Sea level rise does not pose an immediate threat to the City due to its inland location and is not discussed further in this EIR, nor are specific impacts associated with the Delta. Anticipated impacts that will result from a warming of the lower atmosphere are described by sector below.

Public Health

Public health impacts associated with a changing climate depend not only on climatic conditions, but also on the specific populations in question and the community's ability to deal with new stress. The most recent CEC sponsored impacts report defines the measure of a community's ability to respond to

²¹ IPCC, 2007, Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

²² California Energy Commission, May 2009, The Future Is Now – An Update on Climate Change Science Impacts and Response Options for California, CEC-500-2008-071, prepared by the California Climate Change Center.

stresses and shocks as “social vulnerability”²³. Social vulnerability is projected to increase in California in coming decades regardless of climatic changes due to demographic changes in the state that will further stress the public health system.

Climate change could affect the health of City residents by increasing the frequency, duration, and intensity of conditions conducive to air pollution formation; increased frequency and intensity of heat-waves; and wildfires.

Extreme heat events are particularly challenging for the elderly, infants, the infirm, and others exposed to relentless heat, such as agricultural laborers or people without access to cooling spaces and air conditioning. The primary concern is not the change in average climate, but rather the projected increase in extreme conditions or natural hazards that are responsible for the most serious health consequences, such as heat waves, drought and extremely poor air quality.

Water Resources

The City’s water resources could be altered due to climate change. From a statewide perspective, water resource management in the face of climate change is among the largest challenges facing California. The combination of a growing population and increasingly unreliable surface water storage will tax delivery of water to residential, commercial, energy, environmental and agricultural sources. Currently, about 50 percent of water used in California for human consumption comes from groundwater, and intense scientific study is now focused on understanding the interplay of groundwater supplies, precipitation patterns, groundwater recharge, snowpack, and usage in California. Since the City intends to continue to rely on groundwater resources in the future, the effect of climate change on groundwater resources will be particularly important.

Hydrology and Flooding

At present, it is uncertain whether areas like Patterson will experience increases, decreases, or no change in precipitation due to climate change. Atmospheric modeling at scales that can provide meaningful precipitation projections at the county level is an active area of research, and in coming decades, a better scientific foundation for forecasting this impact at the city or county level will likely be available. However, regional climate change modeling for northern California shows a decrease in precipitation falling as snow and an increase in rainfall during the winter, as well as an increase in the frequency of intense rainfall events²⁴. These conditions will heighten local flood risk. Furthermore, as reliability of the snowpack declines and snowmelt occurs earlier in the year, water managers must adapt infrastructure and procedures to capture and bank winter rainfall to avoid summer shortages.

On a broad level for California, there is a potential increase in the severity of winter storms due to climate change²⁵. If this were to occur, peak stream flows may increase, which would increase the risk of flooding beyond the existing risk levels in the Study Area.

²³ English, et al., 2007, as cited in California Energy Commission, May 2009, *The Future Is Now – An Update on Climate Change Science Impacts and Response Options For California*, CEC-500-2008-071, prepared by the California Climate Change Center.

²⁴ Knowles, et al., 2006, as cited in California Energy Commission, May 2009, *The Future Is Now – An Update on Climate Change Science Impacts and Response Options For California*, CEC-500-2008-071, prepared by the California Climate Change Center.

²⁵ California Natural Resources Agency, 2009, *2009 Climate Adaptation Strategy Discussion Draft – A Report Prepared for the Governor of the State of California in Response to Executive Order S-13-2008*.

Agriculture

Agriculture, along with forestry, is the sector of the California economy that may be most affected by a change in climate. In 2004, income from California agriculture accounted for 13 percent of the US total income.

Crops vary in their vulnerability to various climate-related impacts, such as increasing temperature, declining water availability and reduced air quality. In general, agricultural impacts associated with a warming climate may include the following:

- Crop yield changes.
- Changes in crop types and cultivars.
- New weed invasions and expanded ranges of existing weeds.
- New pest invasions and expanded ranges of existing pests.
- Flooding and crop pollination changes.
- Heat waves and heat stress resulting in low crop quality and/or low crop yields, increased vulnerability to pests, increased animal vulnerability to disease, increased animal mortality, and decreased animal production.

Wildfire Risk

With climate change, the potential for wildfires may increase due to changes in fuel conditions, such as forests transitioning to chaparral and grasslands; precipitation, including longer dry seasons and higher extreme temperatures; wind, which affects the spread of wildfire; and other variables. Wildfire intensity and frequency have increased in recent years across the western United States, with the total area burned increasing nearly seven times for the period between 1987 and 2003 as compared to the period between 1970 and 1986²⁶. The wildfire season in the western United States has increased by 78 days since 1979.

Recent research indicates that statewide occurrence of fire could increase by between 37 and 94 percent before 2085 depending on the level of global warming assumed²⁷. For both safety and economic reasons, the City will need to address the need for increased fire fighting resources, as well as augmented fire management strategies in the future.

Natural Ecosystems

Climate changes and increased CO₂ concentrations are expected to alter the extent and character of natural ecosystems: the distribution of species is expected to shift; the risk of climate-related disturbance such as wildfires, disease, and drought is expected to rise; and forest productivity is projected to increase or decrease, depending on species and region. In Patterson, these ecological changes could have significant implications for fire suppression, managed ecosystems, public health, and the sustainability of the Study Area's natural ecosystems.

Draft Policy Document Response

The Draft Policy Document recommends a number of policies and implementation measures that will help minimize the impacts of climate change on the City's economy and natural resources and promote a climate-resilient community. Policy AR-7.1 and implementation measure NR-8 require the preparation of a Climate Action Plan within 24 months of General Plan adoption. Implementation measure NR-8

²⁶ Westerling, et al, 2006, as cited in California Energy Commission, May 2009, *The Future Is Now – An Update on Climate Change Science Impacts and Response Options For California*, CEC-500-2008-071, prepared by the California Climate Change Center.

²⁷ Westerling, et al., 2009, as cited in California Natural Resources Agency, 2009, *2009 Climate Adaptation Strategy Discussion Draft – A Report Prepared for the Governor of the State of California in Response to Executive Order S-13-2008*.

requires the Climate Action Plan to address (among other things) resiliency and adaptation programs to prepare for potential impacts of climate change, and to provide a phased implementation plan to achieve these goals.

Policies

- NR-1.1 Open space conservation.** The City shall conserve open space areas and drainage canals to protect water resources within the local watershed and the San Joaquin River.
- NR-2.1 Agricultural land preservation.** Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.
- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.
- NR-2.5 Regional farmland preservation.** The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.
- NR-2.10 Right-to-farm.** The City shall continue to apply its right-to-farm ordinance.
- NR-6.1 Sustainable building practices.** The City shall encourage the use of sustainable, energy efficient construction techniques. The City shall identify and remove regulatory or procedural barriers to implementing green building practices, such as updating codes, guidelines, and zoning, and shall ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques.
- NR-3.2 Protection of sensitive species.** Prior to the approval of a project with the potential to adversely impact special status species or their habitat, the City shall require evidence of compliance with the relevant provisions of state and federal laws relating to the preservation of rare, threatened, or endangered species and their habitat. Such laws include, but are not limited to, the federal and state Endangered Species Acts, the federal Clean Water Act, and the federal Rivers and Harbors Act. (see also Implementation Measures and Appendix NR)
- AR-7.1 Climate Action Plan.** The City shall comply with the relevant provisions of State law (i.e. AB 32 and SB 375) to minimize the effect of citywide greenhouse gas emissions associated with buildout of the General Plan. This shall be achieved through the implementation of a Climate Action Plan.
- AR-7.2 Greenhouse gas reduction goal.** The City shall work with the Air Resources Board and the San Joaquin Valley Unified Air Pollution Control District to comply with statewide greenhouse gas reduction goals as established in the Global Warming Solutions Act of 2006 (AB 32) for 2020, and subsequent goals.

Implementation Measures

- NR-3 The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program will address at least the following:
- The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
 - Criteria for assessing the suitability of agricultural lands to be permanently protected.
 - Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are not limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism
- NR-8 The City shall, within 24 months of adoption of the General Plan, prepare and adopt a comprehensive Climate Action Plan that includes but is not limited to the following components:
- Strategies for public involvement and input;
 - A baseline inventory of greenhouse gas (GHG) emissions from all sources within the city;
 - Goals for reducing manmade greenhouse gas (GHG) emissions from community, municipal, and business activities.
 - Resiliency and adaptation programs to prepare for potential impacts of climate change, and provide a phased implementation plan to achieve these goals.
 - A greenhouse gas emissions reduction target of 15% percent below 2007 levels by 2020, consistent with California Assembly Bill 32, the Global Warming Solutions Act of 2006 (AB32) and the guidance provided in the associated California Air Resources Board Climate
 - Outline a strategy to achieve 1990 GHG levels by 2020 and an 80% reduction from 1990 GHG levels by 2050 in accordance with California State Executive Order S-3-05. A program of regular review of progress toward emissions reduction targets;
 - A green building program that includes adoption of an ordinance which requires Build It Green certification for all new housing and LEED™ Silver certification for all non-residential buildings;
 - A renewable energy portfolio standard of 33% for both investor-owned and publicly-owned utilities.
- NR-9 The City shall prepare and adopt a Sustainability Plan to guide efforts by the City to enact and promote sustainable practices by the City and the community.

By applying these policies and implementation measures the exposure to risks of impacts resulting from climate change to future populations accommodated by each of the Equal-Weight Alternatives will be reduced. However the range of potential environmental impacts and the potential responses that may be enacted over time cannot be identified with certainty. For these reasons this impact is considered **cumulatively considerable and significant and unavoidable.**

Additional Mitigation

None required.

Cumulative Emission of Air Pollutants

Impact 5.7-8 Development accommodated by the Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives together with cumulative development in the San Joaquin Valley Air Basin, would contribute to cumulative air quality impacts and could conflict with ozone and particulate matter attainment efforts. This impact is considered cumulatively considerable.

As discussed under impact 5.7-4, the populations accommodated by each of the Equal-Weight Alternatives for both the 20-year and 40-year growth boundaries will exceed the population projections used by the SJVUAPCD to prepare the 2007 Extreme Ozone Attainment Demonstration Plan. Emissions resulting from mobile and stationary sources associated with each Equal-Weight Alternative. The development and resulting populations were not anticipated by the 2007 Extreme Ozone Attainment Demonstration Plan. Accordingly, these emissions, together with emissions associated with regional development, will hinder efforts to achieve and maintain federal and State air quality standards. This impact is considered cumulatively considerable.

Draft General Plan Policy Response

The draft policies and implementation measures listed above for Project Impacts under impacts 5.7-3 and 5.7-6 will help mitigate regional air quality impacts relating to increased population and housing. However, cumulative impacts will remain **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

None available to reduce the impact to less than significant.

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Persons Consulted

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5.8 NOISE

Introduction

This section assesses the potential increase in the level of noise and groundborne vibration exposure that could result from implementation of the Equal-Weight Alternatives. The analysis is based on a study prepared for the General Plan update by Brown Buntin Associates (BBA), noise consultants. The entire study is provided as Appendix 5.8 Noise Element Update.

Setting

Background and Terminology

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers for many years have grappled with the problem of translating objective measurements of sound into directly correlatable measures of public reaction to noise. The descriptors of community noise in current use are the results of these efforts and represent simplified, practical, measurement tools to gauge community response.

Noise has often been cited as a health problem, not so much in terms of actual physiological damage, such as hearing impairment, but more in terms of reducing general well-being and contributing to undue stress and annoyance. Interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination, are the principal cause of noise-induced health problems and stress.

As part of the state-mandated General Plan Noise Element, state law and guidelines prepared by the State Office of Noise Control (ONC) require that certain noise sources and areas containing noise-sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected conditions within a community. Noise contours may be prepared in terms of the community noise equivalent level (CNEL, see below) or day-night average level (Ldn), both of which are descriptors of total noise exposure at a given location for an annual average day. This noise exposure information may be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise.

The ONC guidelines require that the following major noise sources be considered in preparing a noise element:

- Highways and freeways.
- Primary arterials and major local streets.
- Passenger and freight on-line railroad operations and ground rapid transit systems.
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
- Local industrial plants, including, but not limited to, railroad classification yards.
- Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

The following terms are used in the assessment of potential noise impacts associated with the Equal-Weight Alternatives:

A-Weighted Sound Level. All sound levels referred to in this study are in A-weighted decibels. A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighting, as it provides a high degree of correlation with human annoyance and potential adverse health effects.

Community Noise Equivalent Level (CNEL). The time-weighted average sound level during a 24-hour day, obtained after addition of approximately 5 dB to sound levels during the evening hours (7:00 p.m.-10:00 p.m.) and 10 dB to sound levels during the nighttime hours (10:00 p.m.-7:00 a.m.). The State of California requires that aircraft noise exposure be defined in terms of the annual average CNEL.

Day/Night Average Sound Level (DNL). The time-weighted average sound level during a 24-hour day, obtained after addition of 10 dB to sound levels during the nighttime hours (10:00 p.m.-7:00 a.m.). The DNL and CNEL are similar descriptors of the community noise environment and are generally considered to be equivalent within ± 1.0 dB.

Decibel. Abbreviated as dB, decibel is a measurement of sound energy or sound pressure. The decibel scale is logarithmic. A 10-decibel increase in sound is equal to a tenfold increase in sound energy.

Equivalent Sound Level (Leq). The sound level containing the same total energy as a time varying signal over a given period. The Leq is typically calculated for either one-hour or 24-hour periods, but may be calculated for any stated period of time.

L_{max}. The highest A-weighted sound level occurring during a noise event.

L₉₀ is the level exceeded for 90% of the time. For 90% of the time, the noise level is above this level. It is generally considered to be representing the background or ambient level of a noise environment.

New Development. Projects requiring land use or building permits, but excluding remodeling or additions to existing structures.

Noise-Sensitive Land Use. Residential land uses, transient lodging, parks, schools, libraries, churches, hospitals and nursing homes.

Outdoor Activity Areas. Outdoor activity areas for single-family homes are generally considered to be individual backyards. Outdoor activity areas for multi-family residences or transient lodging facilities are generally considered to be patios, decks and common outdoor recreation areas.

Stationary Noise Source. Any fixed or mobile source not preempted from local control by federal or state regulations. Examples of such sources include agricultural, industrial and commercial facilities and vehicle movements on private property.

Transportation Noise Source. Traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by federal or state regulations. However, the

effects of noise from transportation sources may be controlled by regulating the locations and design of adjacent land uses.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases. The acceptability of noise and the threat to public well-being are the basis for land use planning policies preventing exposure to excessive community noise levels.

Noise Reduction

Various methods can be employed to reduce noise levels, including enclosures, barriers, and sound-dampening materials. The methods employed are dependent on various factors, including source and receptor characteristics, as well as environmental conditions. With regard to typical community noise sources, noise-reduction techniques typically focus on the isolation or shielding of the noise source from nearby noise-sensitive receptors. The more common methods include the use of buffers, enclosures, and barriers. In general, these techniques contribute to decreasing noise levels only when the structure breaks the “line of sight” between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers. Changes in design specifications and use of equipment noise control devices (e.g., mufflers and silencers) are also commonly employed to reduce stationary-source (i.e., nontransportation) noise levels. Additional noise control techniques commonly used for transportation noise sources include traffic control, such as prohibiting heavy-duty trucks and reducing speed limits along primarily affected corridors. However, an approximate 20 mile-per hour reduction in speed would typically be required to achieve a noticeable decrease in noise levels. In some instances, the use of noise-reducing pavements, such as rubberized asphalt, has also been employed to reduce traffic noise.

Sources of Noise in the Study Area

There are several potentially significant primary sources of community noise within Patterson. These sources include traffic on major roadways and highways, railroad operations, and agricultural and industrial activities.

A community noise survey was conducted to document existing background (ambient) noise levels at four representative locations within the City. The monitoring site locations were located in both residential and commercial areas of the City. Noise measurements were conducted concurrently at the sites, beginning at midnight on March 25, 2010. The monitoring sites are shown in Figure 5.8-1.

Noise measurements were conducted continuously for a 24-hour period using Larson-Davis Laboratories Model 820 sound level analyzers equipped with Bruel & Kjaer (B&K) Type 4176 ½ inch microphones. The equipment was calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements and complies with applicable standards of the American National Standards Institute (ANSI) for Type 1 sound level meters. Microphones were located on tripods at approximately five feet above the ground.

Community noise survey findings are summarized graphically in Appendix 5.8. Shown are the measured hourly noise levels during the survey period, as defined by the L_{max} , L_{eq} and L_{90} descriptors. The L_{max}

represents the highest noise level measured during each hour of the sample period and the L_{90} represents the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} describes the residual (or background) noise level in the absence of identifiable noise events such as those caused by vehicle or train pass-bys. As previously noted, the L_{eq} is the energy average noise level during the hour. The measured DNL values for the 24-hour measurement period are also noted.

Site 1 was located at a self storage facility on North 1st Street between M Street and Olive Avenue. The site is a commercial area with mixed residential uses to the west and agriculture and rural residential uses to the east. The microphone was located approximately 150 feet east of State Route 33 (SR-33) and approximately 230 feet west of North 1st Street. The California Northern Railroad (CFNR) track is located approximately 80 feet to the west, and lies between SR-33 and the site. Measured hourly maximum noise levels ranged from 61-91 dBA during the sample period, and were likely caused by passing vehicles and trains. Background (L_{90}) noise levels ranged from about 50-55 dBA during the morning and afternoon commute hours to about 45-50 dBA during the middle of the afternoon, evening and night time hours. The measured DNL was 62.4 dB.

Site 2 was located at a City water storage facility approximately 475 feet northwest of the intersection of Orange Avenue and Locust Avenue. There are commercial uses located to the west of the site, and agricultural uses to the north, east and south. There are a few existing single-family homes located to the south of the monitoring site. Measured hourly maximum noise levels ranged from 55-86 dBA during the sample period and were likely caused by passing vehicles and trains. Background (L_{90}) noise levels were relatively constant throughout the sample period, and ranged from 53-55 dBA. The predominant background noise source measured at Site 2 was exhaust fans from the Sierra Pacific facility. The measured DNL was 62.1 dB.

Site 3 was located at a City fire station at 1950 Keystone Pacific Parkway. The microphone was located approximately 325 feet east of Park Center Drive and approximately 350 feet south of Keystone Pacific Parkway. The site is surrounded by existing commercial uses and open land. There are existing single-family homes located approximately 1,500 feet east of the monitoring site. Measured hourly maximum noise levels ranged from 55-80 dBA during the sample period and were likely caused by passing trucks. Background (L_{90}) noise levels ranged from below 40 dBA during the late night and early morning hours to about 47 dBA during the morning commute hours. The measured DNL was 55.4 dB.

Site 4 was located in a vacant lot on Peach Blossom Lane between Plumeria Drive and Garden Patch Way. The meter was located in a residential area surrounded by single-family homes. Measured hourly maximum noise levels ranged from 48-73 dBA during the sample period and were likely caused by passing vehicles. Background (L_{90}) noise levels ranged from below 40 dBA during the late night and early morning hours to about 47 dBA late afternoon and early evening hours. The measured DNL was 50.6 dB.

Stationary Noise Sources

Major existing stationary noise sources within the City of Patterson include the central core commercial/industrial area along SR-33, the CFNR tracks and the CVS Pharmacy and Kohls distribution centers on the west side of town. There are also various smaller sources located within the Study Area.

Central Core Commercial/Industrial Area. This commercial/industrial area represents the area east of SR-33 extending from approximately Las Palmas Avenue to Orange Avenue. This area includes Patterson Vegetable, Sierra Pacific, Trinidad Benham, Traina Foods, George Lowry Petroleum, and other agricultural- and industrial- related facilities. Noise levels generated within this area were measured at multiple short-term locations on March 25-26, 2010, as noted in Figure 1.

Table 5.8-1 documents the measured noise levels and locations of the short-term monitoring sites. Noise levels varied widely throughout the area, with the loudest areas being to the north along Las Palmas Avenue in the vicinity of Patterson Vegetable, as well as in the southern portion along 2nd Street near Trinidad Benham. The closest residential uses are the Las Palmas trailer park to the east. Noise measurements were obtained at two locations within the trailer park (Enrique Way/El Camino Drive and Shirlinda Way/Pasa Felix Drive). Noise levels at these locations ranged from approximately 46-52 dBA.

Figure 5.8-1: Stationary Source Monitoring Sites



Table 5.8-1: Measured Noise Levels (Dba)
Central Core Commercial/Industrial Area
March 25-26, 2010

Location	Range (dBA)	Primary Source
Enrique Way and El Camino Drive	50-52	Patterson Vegetable
Las Palmas Avenue and 1 st Street	69-71	Patterson Vegetable
110 E Las Palmas Avenue	73-74	Patterson Vegetable
495 S. 2 nd Street	66-67	Trinidad Benham
341 S. 1 st Street	60-65	Trinidad Benham
Orange Avenue and Locust Avenue	48-51	Traina Foods
Shirlinda Way and Pasa Felix Drive	46-47	Patterson Vegetable
2 nd Street and Las Palmas Avenue	64-67	Patterson Vegetable
Salado Avenue and El Circulo Avenue	64-66	Patterson Vegetable
Orange Avenue and 1 st Street	54-57	Sierra Pacific
261 Orange Avenue	49-52	Sierra Pacific
Source: Brown-Buntin Associates, Inc.		

CVS Pharmacy Distribution Center. CVS Pharmacy operates a distribution center southwest of the intersection of Keystone Pacific Parkway and Park Center Drive. Noise sources include trucks entering and exiting the facility, rooftop fans, occasional outdoor forklift movements, and back-up warning beepers. Short term noise measurements were obtained at a distance of approximately 500 feet from the east side of the facility as noted in Figure 5.8-1. Measured noise levels at that site ranged from 42-45 dBA. Long term monitoring Site 3 was also located east of the distribution center, and background noise levels measured for the 24-hour period ranged from approximately 33-48 dBA. Truck traffic along Keystone Pacific Parkway and Rogers Road was observed to represent a greater noise source than activities at the distribution center.

Kohl's Distribution Center. Kohl's Department Store operates a distribution center along the north side of Keystone Pacific Parkway, approximately 1,300 feet northeast of the CVS Pharmacy Distribution Center. Noise sources include trucks entering and exiting the facility, occasional fork lift movements, and back-up warning beepers. Short term noise measurements were obtained at a distance of approximately 800 feet from the south side of the facility as noted in Figure 5.8-1. Facility-related noise levels at that site ranged from approximately 44-46 dBA. As was the case with the CVS Pharmacy distribution center, activities related to the Kohl's facility were often inaudible above other ambient noise sources, namely roadway vehicle traffic. Truck traffic along Keystone Pacific Parkway and Rogers Road was observed to represent a greater noise source than activities at the distribution center.

Various Commercial/Industrial-related Industries. Observations on March 25, 2010 indicated that there are a number of commercial/industrial-related uses located north of Las Palmas Avenue generally between North 1st Street and SR-33. There are existing residential uses along the east side of North 1st Street in close proximity. Noise levels were measured in front of a residence along North 1st Street at a distance of approximately 60 feet from Peck & Hiller Concrete, and noise levels ranged from approximately 53-61 dBA. Noise sources included welding, cutting, and grinding activities, and truck movements. Additionally, noise measurements were obtained near Designed Mobile Systems, a manufacturer of modular buildings, located west of SR-33 and north of Poppy Avenue. Noise levels were

obtained at a nearby residence at 349 Poppy Avenue, and were measured to be in the range of 49-51 dBA. Noise sources included forklift movements and back-up warning beepers. Short-term noise monitoring sites are noted in Figure 5.8-1.

Roadways

Automobile traffic on roadways is one of the primary sources of noise within the Study Area. The eastern portion of the Study Area is most affected by noise generated by State Route 33, with the existing baseline ranging from 67-69 dB. Additional roadways within the eastern portion of the Study Area which generate significant levels of noise consist of Walnut, Sycamore, and Eucalyptus Avenues; however, these roadways do not generate baseline noise levels in excess of 56 dB.

Within the western portion of the Study Area, a substantial amount of vehicular noise is generated by Interstate-5. Approximately 25,000 vehicles per day travel the I-5 corridor through the Study Area¹, with approximately 25 percent of these vehicles classified as heavy-duty or lighter trucks². Additional roadways within the western portion of the Study Area expected to generate moderate noise levels are Sperry Avenue, Baldwin Road, and Ward Avenue. These roads are rural or transitional connector streets that may have occasionally fast-moving traffic, but are not heavily-traveled at night, causing only moderate levels of noise during the day. It is estimated that noise levels beyond about 65 feet of the centerline of Sperry Avenue are below 60 dBA.

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop DNL contours for I-5, SR-33, and major local roadways. The FHWA Model is an analytical method favored by most state and local agencies, including Caltrans, for highway traffic noise prediction. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate to within ± 1.5 dB. To determine DNL values, it is necessary to estimate the day/night distribution of traffic so that an hourly equivalent traffic volume may be calculated. The FHWA Model assumes a clear view of traffic with no shielding at the receiver location.

Average Daily Traffic (ADT) volumes and speeds used for noise modeling were provided by TJKM Transportation Consultants, the project traffic engineers (the reader is referred to section 5.6 Transportation and Circulation). The day/night distribution of traffic was estimated by BBA based upon studies along similar roadways. The percentage of trucks on I-5 and SR-33 were obtained from Caltrans. The percentage of trucks on major local streets was estimated by BBA based upon studies along similar roadways. It was assumed that Rogers Road north of Sperry Avenue is a truck route with higher percentages of trucks than other major local streets. Appendix 5.8 summarizes the noise modeling assumptions used to calculate traffic noise exposure for existing conditions along I-5, SR-33 and major local streets.

Table 5.8-2 summarizes calculated noise exposure at typical building setbacks and the distances to the DNL 60 and 65 dB contours for existing traffic conditions. Figure 5.8-2 shows the roadways where distances to DNL contours were calculated for existing traffic conditions. The streets are color coded to indicate the approximate distances to the 60 dB DNL contours. Traffic noise exposure information is generalized for flat terrain and the absence of acoustical shielding or reflections that may be caused by site-specific conditions.

¹ TJKM Transportation Consultants Traffic Study for the City of Patterson General Plan, 2010

² State of California Department of Transportation, 2006 Annual Average Daily Truck Traffic on the California State Highway System

Table 5.8-2: Generalized Traffic Noise Exposure, 2010

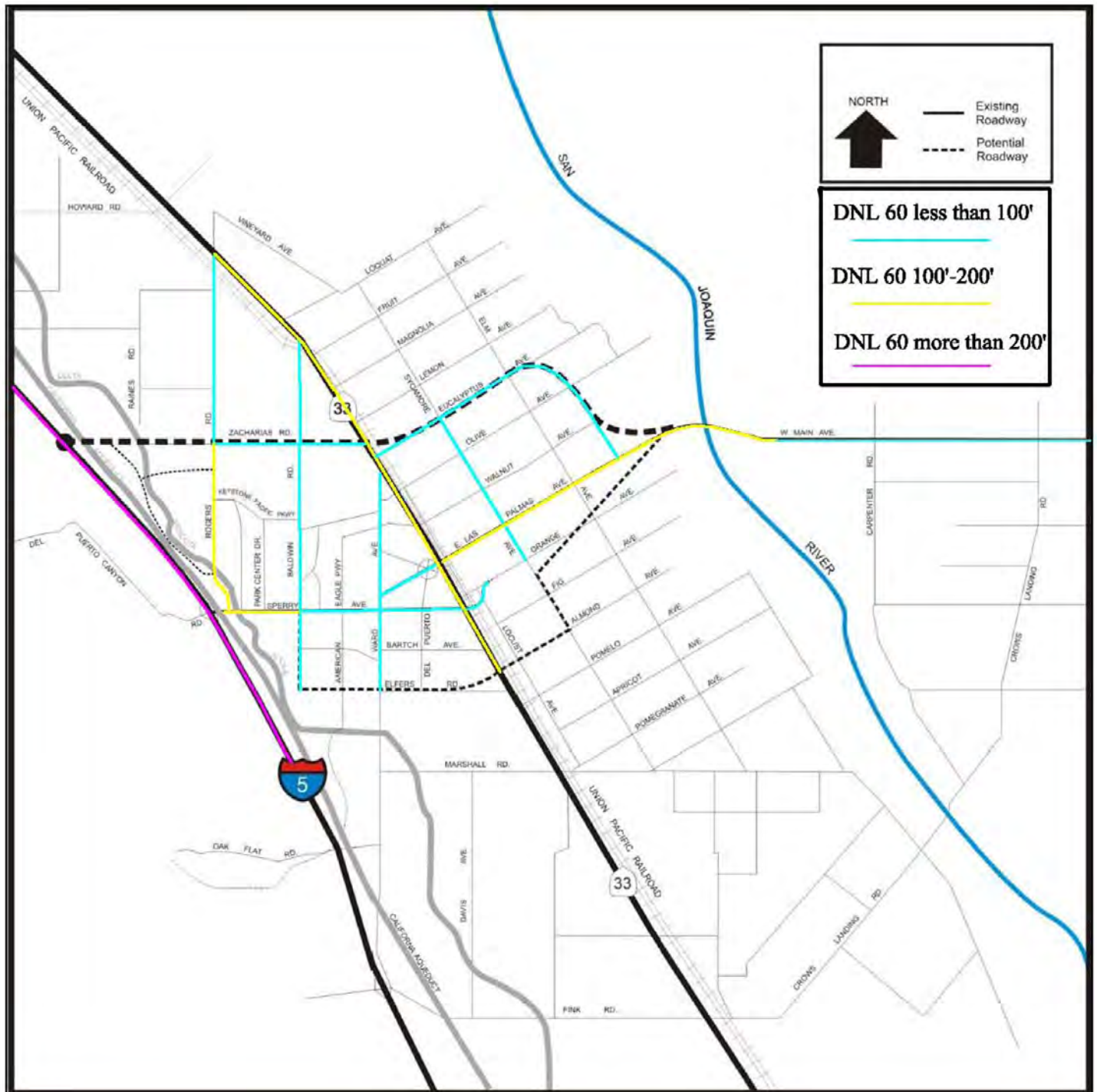
Roadway	Segment	DNL @ Typical Setback, dB ¹	Distance, Feet ²	
			60 dB DNL	65 dB DNL
I-5	n/o Sperry Ave.	73.4	1564	726
	s/o Sperry Ave.	74.0	1705	792
SR-33	w/o Baldwin Rd.	65.4	172	80
	e/o Baldwin Rd.	63.3	125	58
	n/o Zacharias Rd.	62.1	104	48
	s/o Zacharias Rd.	62.5	110	51
	n/o Las Palmas Ave.	62.1	103	48
	s/o Las Palmas Ave.	63.7	132	61
	n/o Sperry Ave.	63.6	131	61
	s/o Sperry Ave.	64.8	156	73
	s/o SR-33	52.6	24	11
Rogers Rd.	n/o Sperry Ave.	63.2	122	57
	s/o Sperry Ave.	---	---	---
	w/o Rogers Rd.	62.0	102	47
Sperry Ave.	e/o Rogers Rd.	61.2	90	42
	w/o Baldwin Rd.	61.0	88	41
	e/o Baldwin Rd.	60.7	83	39
	w/o Ward Ave.	61.2	90	42
	e/o Ward Ave.	61.4	93	43
	w/o SR-33	59.4	69	32
	e/o SR-33	54.8	34	16
	n/o Sperry Ave.	56.2	42	19
Baldwin Rd.	s/o Sperry Ave.	52.3	23	11
	s/o SR-33	49.3	15	7
Ward Ave.	n/o Sperry Ave.	58.4	58	27
	s/o Sperry Ave.	56.2	42	20
Zacharias Rd.	w/o SR-33	50.0	16	7
	e/o SR-33	---	---	---
Eucalyptus Ave.	e/o SR-33	48.1	12	6
Las Palmas Ave	w/o SR-33	59.5	69	32
	e/o SR-33	62.7	113	53
	w/o Poplar Ave.	63.6	130	60
	e/o Poplar Ave.	63.6	130	61
Sycamore Ave.	n/o Las Palmas Ave.	54.3	31	14
	s/o Las Palmas Ave.	56.3	42	20
Poplar Ave.	n/o Las Palmas Ave.	49.1	14	7
W. Main Ave.	n/o Las Palmas Ave.	61.3	91	42
	s/o Las Palmas Ave.	59.9	73	34

Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.
2. From the center of the roadway.

Figure 5.8-2: Traffic Noise Exposure Contours – Existing Conditions



Railroads

The California Northern Railroad (CFNR) currently operates freight trains over the Westside Branch of the Union Pacific Railroad (UPRR) through Patterson between Tracy and Los Banos. According to the Federal Railroad Administration rail crossing inventory (01/01/96), an average of six trains per day pass through Patterson. It should be noted that this figure includes switching movements at local industries, and that, based upon field observations, this may be a high estimate for current operations over the line. Freight trains may occur at any time during the day or night. The current maximum train speed through Patterson is 25 mph.

There are approximately 20 public or private roadway grade crossings within the Study Area. Train engineers are required to sound the warning horn when approaching within approximately 1,000 feet of a grade crossing. Train noise levels are therefore higher at locations near grade crossings. Due the number of grade crossings within the Study Area, warning horns are used frequently as trains pass through Patterson.

Noise levels produced by a northbound freight train with two locomotives and 15 cars were recorded by Brown-Buntin Associates, Inc. (BBA) near the M Street grade crossing on March 25, 2010. At a distance of 100 feet from the track, the measured maximum (L_{max}) and Sound Exposure Level (SEL) values were 103.3 and 109.8 dBA, respectively. The SEL is a measure of total sound energy produced by a noise event, normalized to a reference duration of one second. The SEL is not actually heard but is the noise metric used for the calculation of cumulative noise exposure as defined by the DNL. Noise levels produced by passing trains are variable, depending upon speed, length of train, condition of equipment and tracks, perceived safety conflicts of individual train crews and other variables.

Railroad noise exposure within the City of Patterson was calculated based upon the above-described operations data and noise level data for freight train movements recorded by BBA for numerous studies along the UPRR and other railroads in the Central Valley. At a distance of 100 feet from the center of the track, typical freight train pass-bys near a grade crossing have been shown to produce average SEL values of 106.3 dBA. At distances greater than 1,000 feet from a grade crossing, typical freight train pass-bys have been shown to produce average SEL values of 102.1 dBA at 100 feet from the tracks.

It was assumed for the calculations that freight train operations may occur at any time of the day or night. Within 1,000 feet of a grade crossing, the calculated distance to the 60 dB DNL contour for current railroad activity is 575 feet from the center of the tracks. At distances greater than 1,000 feet from a grade crossing, the calculated distance to the 60 dB DNL contour is 288 feet from the center of the tracks. Calculated distances are generalized and do not take into consideration site-specific conditions such as acoustic shielding or reflections caused by nearby buildings.

Aircraft Noise

The Patterson Airport and former Crow's Landing Airfield Facility (CLAF) are located within or affecting the Study Area. Only the Patterson Airport is still active. The Patterson Airport is a private airport consisting of a single 2,500 foot-long runway. According to FAA records, there are 12 aircraft based at the airport and an average of 33 aircraft operations per day. However, no aircraft operations were observed during field studies and aircraft were not observed on the airfield. If aircraft operations do occur, they are sporadic and do not generate significant noise exposure as defined by the CNEL noise metric. However, such operations would be distinctly audible in the vicinity of the airport.

Crows Landing Airfield is currently not in use. However, Stanislaus County has proposed that it be reopened as a general aviation airport as part of the Stanislaus County public airport system. According to the January 2009 draft of the Crows Landing Airport Land Use Compatibility Plan (ALUCP), the

airport would reopen with a single 5,300 foot-long runway with approximately 4,000 annual aircraft operations. In the “ultimate” configuration (20 years+), the airfield would have two parallel runways 6,300 feet long and 200,000 annual operations. Operations would be mostly single and twin engine propeller or turboprop aircraft and helicopters, with approximately 10% business jet operations. The airport design aircraft for the ultimate development of the airport is the Gulfstream III business jet.

Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses that would result in noise exposure that could cause health-related risks to individuals. Places where quiet is essential are also considered noise-sensitive uses. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Other land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. School classrooms, places of assembly, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

Regulatory Setting

Federal Regulations

Federal Aviation Administration

As a means of implementing the Aviation Safety and Noise Abatement Act of 1979, the Federal Aviation Administration adopted regulations that established a voluntary program which airports can utilize to conduct airport noise compatibility planning. These compatibility planning studies are often referred to as “Part 150” studies. Part 150 includes a system for measuring airport noise impacts and presents guidelines for identifying incompatible land uses. Airports that choose to undertake a Part 150 study are eligible for federal funding both for the study itself and for implementation of approved components of the local program.

The noise exposure maps included in Part 150 studies are depicted in terms of average-daily noise contours (i.e., Ldn or CNEL) around the airport. For the purposes of federal regulations, all land uses are considered compatible with noise levels of less than DNL 65 dB. At higher noise exposures, selected land uses are also deemed acceptable, depending upon the nature of the use and the degree of structural noise attenuation provided. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Federal Railroad Administration

The federal government, in response to safety concerns at grade crossings, enacted the Swift Rail Development Act of 1994. This act mandated that the Secretary of Transportation issue regulations requiring the use of locomotive horns at public grade crossings, but gave the agency the authority to make reasonable exceptions. On January 13, 2000, the Federal Railroad Administration published a Notice of Proposed Rule Making in the Federal Register addressing the use of locomotive horns at public road-rail grade crossings. Accordingly, locomotive horns must be sounded on approach and while entering public grade crossings, unless there is no significant risk of increased grade crossing collisions, the use of the locomotive horn is impractical, or where safety measures can be installed to fully compensate for the absence of the warning provided by the horn.

U.S. Environmental Protection Agency

In 1974, the EPA Office of Noise Abatement and Control published a report entitled *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare* with an Adequate Margin of Safety. Although

this document does not constitute EPA regulations or standards, it is useful in identifying noise levels at which increased levels of annoyance would be anticipated. Based on an annual-average day-night noise level (expressed as Ldn or DNL), the document states that “undue interference with activity and annoyance” will not occur if outdoor noise levels in residential areas are below 55 dBA Ldn and indoor levels are below 45 dBA Ldn³.

Department of Housing and Urban Development

The Federal Department of Housing and Urban Development (HUD) guidelines for the acceptability of residential land uses are set forth in the Code of Federal Regulations, Title 24, Part 51, “Environmental Criteria and Standards.” These guidelines identify a noise exposure of 65 dBA Ldn, or less, as acceptable. Noise levels of 65 to 75 dBA Ldn are considered normally acceptable, provided appropriate sound attenuation is provided to reduce interior noise levels to within acceptable levels. Noise levels above 75 dBA Ldn are considered unacceptable. The goal of the interior noise levels is 45 dBA Ldn. These guidelines apply only to new construction supported by HUD grants and are not binding upon local communities⁴.

State Regulations

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land use compatibility criteria.

California Building Code

Title 24 of the California Code of Regulations contains standards for allowable interior noise levels associated with exterior noise sources⁵. The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences. The standards state that the interior noise level attributable to exterior sources shall not exceed 45 dBA in any habitable room. Proposed residential structures to be located where the annual Ldn or CNEL exceeds 60 dBA shall require an acoustical analysis showing that the proposed building design would achieve the prescribed allowable interior noise standard. The noise metric shall be either the Day-Night Average Sound Level (Ldn) or the Community Noise Equivalent Level (CNEL), existing or future, shall be used as the basis for determining compliance with these standards⁶.

California Airport Noise Regulations

The airport noise standards promulgated in accordance with the State Aeronautics Act are set forth in Section 5000 et seq. of the California Code of Regulations (Title 21, Division 2.5, Chapter 6). The current version of the regulations became effective in March 1990. In Section 5006, the regulations state “The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dBA for purposes of these regulations. Noise-sensitive land uses (i.e., residential dwellings, schools, hospitals and convalescent homes, and places of worship) that are located within the 65 dBA CNEL noise contour would be considered incompatible, unless mitigation has been incorporated. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep and community reaction”⁷.

³ EPA, 1974

⁴ Caltrans, 2002a

⁵ California Building Code, 1998 edition, Volume 1, Appendix Chapter 12, Section 1208A

⁶ Caltrans, 2002a

⁷ Caltrans, 2002a

State of California General Plan Guidelines

The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific noise environments. Based on these guidelines, residential uses, churches, libraries, and hospitals are normally unacceptable in areas exceeding 70 dBA CNEL and conditionally acceptable between 60 and 70 dBA CNEL. Professional and commercial office buildings are normally unacceptable in areas exceeding 75 dBA CNEL and conditionally acceptable between 67 and 77 dBA CNEL. However, the state stresses that these guidelines can be modified to reflect communities' sensitivities to noise. Adjustment factors may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

According to the Government Code and ONC Guidelines, noise exposure contours should be developed in terms of the Day-Night Average Level (DNL) or Community Noise Equivalent Level (CNEL) for transportation-related noise sources. Both of those descriptors represent the time-weighted energy noise level for a 24-hour day after inclusion of a 10 dB penalty for noise levels occurring at night between the hours of 10:00 p.m. and 7:00 a.m. The CNEL descriptor also includes a penalty of 4.8 dB for noise levels occurring during the evening hours of 7:00 p.m. and 10:00 p.m. The CNEL descriptor was developed for the quantification of aircraft noise, and its use is required when preparing noise exposure maps for airports within the State of California. The CNEL and DNL descriptors are generally considered to be equivalent to each other for most community noise environments within ± 1.0 dB.

Local Regulations

Stanislaus County Airport Land Use Commission

The Stanislaus County Airport Land Use Commission's (ALUC) primary responsibility is formulation and adoption of a comprehensive land use plan that provides for the orderly growth and protection of the public health, safety, and welfare within the planning area of each public use airport within Stanislaus County. The Commission assists local agencies in ensuring compatible land uses in the vicinity of all new and existing airports located within the County.

The ALUC has adopted airport land use compatibility plans for Patterson Airport and Crows Landing Airfield. More recently, the ALUC has prepared a draft revision of the airport land use compatibility plan for the Crows Landing Airfield.

City of Patterson Municipal Code

Chapter 6.44 of the Patterson Municipal Code includes provisions to address noise as a nuisance. These provisions are intended to protect community residents from prolonged unnatural or unusual noise levels that could cause increased levels of annoyance, discomfort, or injury. In accordance with the City's municipal code requirements, construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Patterson General Plan Noise Element

The 2010 General Plan Noise Element establishes compatibility noise exposure standards from transportation sources for different land uses as summarized in table II-3.

Table II-3: Maximum Allowable Noise Exposure Transportation Sources		
Land Use	Outdoor Activity Areas ¹	Interior Spaces
	Ldn/CNEL, DbLdn/CNEL,	dbLeq, Db ²
Residential	60 ³	45
Transient Lodging	60 ³	45
Hospitals, Nursing Homes	60 ³	45
Theaters, Auditoriums, Music Halls		35
Churches, Meeting Halls	60 ³	40
Office Buildings	60 ³	45
Schools, Libraries, Museums		45
Playgrounds, Neighborhood Parks	70	
- 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. - As determined for a typical worst-case hour during periods of use. - Where it is not possible to reduce noise in outdoor activity areas to 60 Db Ldn/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.		

In general, outdoor activity areas subjected to a noise level of 60 Ldn/CNEL requires the application of best available noise reduction measures. An exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with the standards set forth in Table II-3.

Standards of Significance

The impact analysis provided below is based on the following State CEQA Guidelines Appendix G thresholds of significance. A noise impact is considered significant if implementation of the General Plan Update would:

1. Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies.
2. Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
4. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5. Expose people residing or working in the Study Area to excessive noise levels for a project located within an airport land use plan area or, where such a plan has not been adopted, or within two miles of a public airport or a public use airport.
6. Expose people residing or working in the Study Area to excessive noise levels for a project within the vicinity of a private airstrip.

Project Impacts and Mitigation Measures

Methodology and Assumptions

Analytical noise modeling techniques were used to develop generalized DNL contours for major transportation noise sources within the City of Patterson for existing and projected future conditions. A combination of analytical methods and actual noise measurements was used to develop noise exposure information for stationary noise sources. Since the standards to be applied to stationary noise sources are based upon the equivalent energy sound level (L_{eq}) during any one-hour period, noise exposure information was developed for those sources in terms of the L_{eq} .

The noise exposure information developed during the preparation of this analysis does not include all conceivable sources of industrial, commercial or transportation noise within the Study Area, but rather is a representative sampling of typical sources. The noise exposure information developed for the sources identified for study should be used as an indicator of potential noise impacts when other, similar sources are considered.

It is assumed that the existing stationary noise sources described above will continue to operate at their current locations. Plans for future expansion or equipment replacement at those facilities were not known at the time this analysis was prepared. However, it should be assumed that noise compatibility conflicts could occur with the development of new noise-sensitive uses near existing stationary noise sources.

The West Park Specific Plan is a proposed project that would occur in four phases over a 30 year period, and would cover an area of approximately 4,800 acres south of the City of Patterson. The proposed project would include the former CLAF and approximately 3,276 acres of undeveloped land surrounding CLAF. The Specific Plan would include the development of an inland port and short-haul rail services to and from the Port of Oakland, the development of an industrial business park, the development of a general aviation airport on the former CLAF property, as well as additional infrastructure and public facility improvements to support the project. Development of Crows landing as contemplated by the West Park Specific Plan, and its contribution to regional transportation-related noise, has been included in this analysis.

Noise from Construction Activities

Impact 5.8-1 Construction activities associated with urban development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives within the 20-year and 40 year buildout growth boundaries could result in elevated noise levels at noise-sensitive land uses. Increases in ambient noise levels, particularly during the nighttime hours, could result in increased levels of annoyance and potential sleep disruption. This impact is considered potentially significant.

Construction activities would include the use of heavy equipment for grading and other activities, through completion of streets, buildings, bridges, public facilities, utilities, and landscaping. Heavy trucks would travel to and from, and within, the development areas to perform earthwork, and to move equipment and building materials. Smaller equipment, such as jack hammers, pneumatic tools, and saws could also be used throughout the construction phases. The noise associated with these activities would be generated within the entire development project area and at off-site locations near any infrastructure improvements. Table 5.8-3 provides a summary of typical construction equipment and the corresponding noise level at 50 feet with and without feasible noise control measures.

Existing residences and other sensitive receptors located adjacent to a particular project site with direct line-of-sight to construction activities and construction traffic would be affected along with new residences as they are developed within the project. Utility improvements (e.g., water, gas, electrical, etc.) and widening of roadways bordering the project site would also affect these residences. Residences at increased setback distances from the roadways bordering the project site would be buffered and shielded from construction activities by buildings closer to the roadways, and thus would not be significantly impacted by these construction activities.

For any one receptor location or residence, construction noise would be an intermittent impact extending only for the short term, corresponding with the development schedule for nearby project components.

Because most construction equipment causes intermittent noise levels up to 89 dBA at a distance of 50 feet, any noise-sensitive locations that would be in close proximity to project-related construction noise could experience a recognizable noise increase. Therefore, although temporary, noise-generating activities over the long-term construction period could cause a significant impact without implementation of reasonable measures to manage construction activities.

Table 5.8-3: Typical Construction Equipment Noise Levels		
Equipment	Noise Level (dBA) at 50 Feet	Noise Level (dBA) at 50 Feet With Feasible Noise Controls
Earth Moving		
Front Loader	79	75
Backhoe	85	75
Dozer	80	75
Tractor	80	75
Scraper	88	80
Grader	85	75
Paver	89	80
Materials Handling		
Concrete Mixer	85	75
Concrete Pump	82	75
Crane	83	75
Stationary		
Pump	76	75
Generator	78	75
Impact		
Pile Driver	101	95
Jack Hammer	88	75
Rock Drill	98	80
Pneumatic Tools	86	80
Other		
Saw	78	75
Vibrator	76	75
Source: US EPA 'Noise From Construction Equipment and Operations, Building Equipment and Home Appliances', NTID 300.1. EPA, December, 2001		

Mitigation Provided By Existing Regulations

As noted above under Regulatory Setting, in accordance with Chapter 6.44 of the Patterson Municipal Code, construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not

jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Draft Policy Document Response

HS-4.9 Acoustical analysis required. Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table HS-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are identified in Table HS-2.) (Note: For the purposes of these noise policies, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance.)

Table HS-2: Requirements For An Acoustical Analysis

An acoustical analysis prepared pursuant to the noise policies of the General Plan shall:

- A. Be the responsibility of the applicant.
- B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
- D. Estimate existing and projected (20 years) noise levels in terms of L- or CNEL and/or the standards of Table 11-3, and compare those levels to the adopted policies of the Noise Element.
- E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
- G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

Implementation Measures

- HS-5 The City shall review and revise as necessary its noise control ordinance to regulate existing noise sources.
- HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.
- HS-7 The City shall enforce state noise insulation standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code (UBC). Title 24 requires that an acoustical analysis be prepared for all new developments of multi-family dwellings, condominiums, hotels and motels proposed for areas within the 60 Db Ld], contour of a major noise source for the purpose of documenting that an acceptable interior noise level of 45 Db L- or below will be achieved. UBC Chapter 35 requires that common wall and floor/ceiling assemblies within multi-family dwellings comply with minimum standards for the transmission of airborne sound and structure-borne impact noise.

Recommended Mitigation

Implementation Measures

- HS-10 The City shall require the following as a condition of project approval to mitigate the adverse noise effects of construction-related activities:
- Construction activities shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. on Saturday, with no construction on Sundays or federal and state holidays; minor construction equipment servicing and maintenance will be exempted from this restriction.
 - During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
 - Stationary noise sources and staging areas shall be located as far as is feasible from existing residences, or contractors shall be required to provide additional noise-reducing engine enclosures (with the goal of achieving approximately 10 dBA of reduction compared to uncontrolled engines).
 - Air compressors and pneumatic equipment shall be equipped with mufflers, and impact tools shall be equipped with shrouds or shields.
 - If for construction purposes, locating stationary construction equipment near existing residential uses is required, an eight-foot-tall sound rated fence shall be erected between the equipment and the sensitive receptor. The fence shall be located as close to the equipment as is feasible.
 - Construction vehicle access routes shall be designed to minimize the impact on existing residences and occupied hospital facilities.
 - A "construction liaison" shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Occupants and property owners of residences within 400 feet of construction activity shall be notified in writing of the construction schedule and the contact information for the construction liaison.

- A qualified acoustical engineer shall be retained during the construction phase of the project to determine if the noise levels generated from construction equipment at the project site to adjacent property lines are within the standards.

Compliance with existing regulations, along with the recommended policies and implementation measures outlined above will reduce construction-related noise impacts to a **less than significant level**.

Traffic Noise

Impact 5.8-2 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review alternatives within both the 20-year and 40 year buildout growth boundaries would result in increases in traffic noise levels in excess of City of Patterson noise standards. This is considered a potentially significant impact.

As discussed above under the Regulatory Setting, the City's currently-adopted noise standard for transportation related noise is provided in Table II-3 of the General Plan Noise Element. In general, the Noise Element establishes a standard of 60 Ldn/CNEL for outdoor activity areas subjected to transportation-related noise. Where the standard of 60 Ldn/CNEL cannot be met by a practical application of the best available noise reduction measures, an exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance.

Future traffic noise exposure was calculated using the FHWA Model described under the Setting, above, and using traffic data obtained from TJKM Transportation Consultants (the reader is referred to section 5.6 Transportation and Circulation) and Caltrans. Traffic noise modeling assumptions for future conditions are summarized in Appendix 5.8.

Tables 5.8-5 and 5.8-6 summarize calculated DNL values for the years 2030 and 2050 at typical setbacks for each of the Equal-Weight Alternatives. Figures 5.8-3, 5.8-4 and 5.8-5 show the roadways where distances to DNL contours were calculated for year 2030 traffic conditions. The streets are color coded to indicate the approximate distances to the 60 dB DNL contours. The distances to the 60, 65 and 70 dB DNL contours for 2030 conditions are summarized for each of the Equal-Weight Alternatives in Appendix 5.8. Future traffic noise exposure information is generalized for flat terrain and the absence of acoustical shielding or reflections that may be caused by site-specific conditions.

As shown on Tables 5.8-5 and 5.8-6, transportation-related noise levels at a point 75 feet from the centerline of the corresponding streets will exceed the 60 Ldn/CNEL standard for outdoor activity areas for all of the streets studied, in both the 20-year and 40 year buildout growth boundaries, with the exception of those highlighted. It should be noted that the results shown on Table 5.8-5 and Table 5.8-6 do not account for acoustical barriers that may exist along roadways where the uses listed in Table II-3 currently exist. For example, sound walls have been constructed along existing residential development along Sperry Avenue west of Ward Avenue, along the east side of Baldwin Road and along certain sections of Ward Avenue. In other instances, the 60 Ldn/CNEL noise level would fall within the street right-of-way.

Table 5.8-4 provides the right-of-way width for the roadways identified in Tables 5.8-5 and 5.8-6. By comparing the resulting DNL with the right-of-way width, Table 5.8-4 reveals that the outdoor activity areas for existing residential neighborhoods adjoining these rights-of-way will exceed the 60 Ldn/CNEL standard established by the Noise Element within the 20 year growth boundary (2030) and the 40 year

buildout growth boundary (2050) as a result of traffic noise. This considered a **potentially significant impact**.

Figure 5.8-3: Distance to 60 dB DNL Contour for the 20-Year Timeframe for the Compact Development Alternative

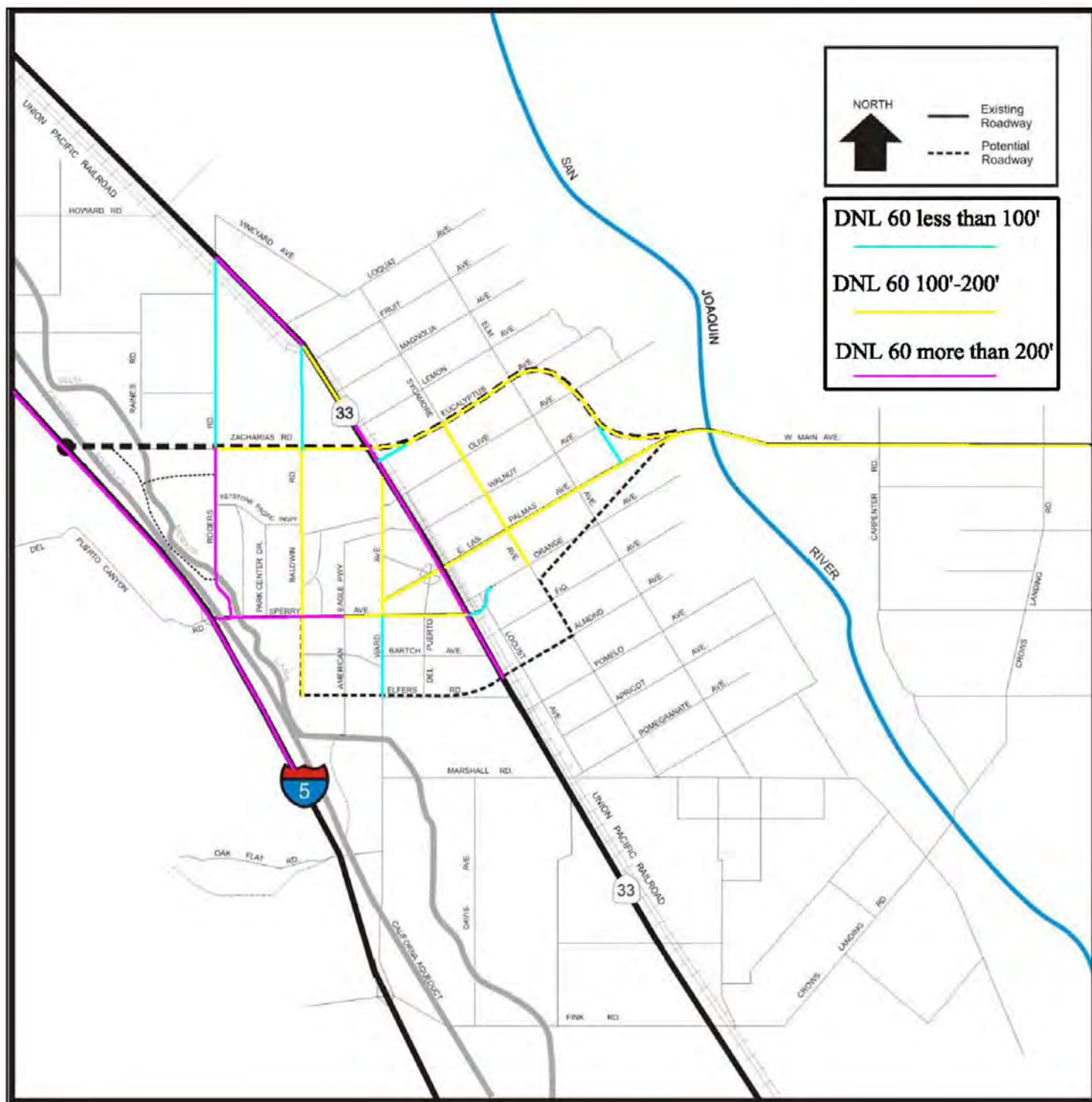


Figure 5.8-4: Distance to 60 dB DNL Contour for the 20-Year Timeframe for the Jobs Emphasis Alternative

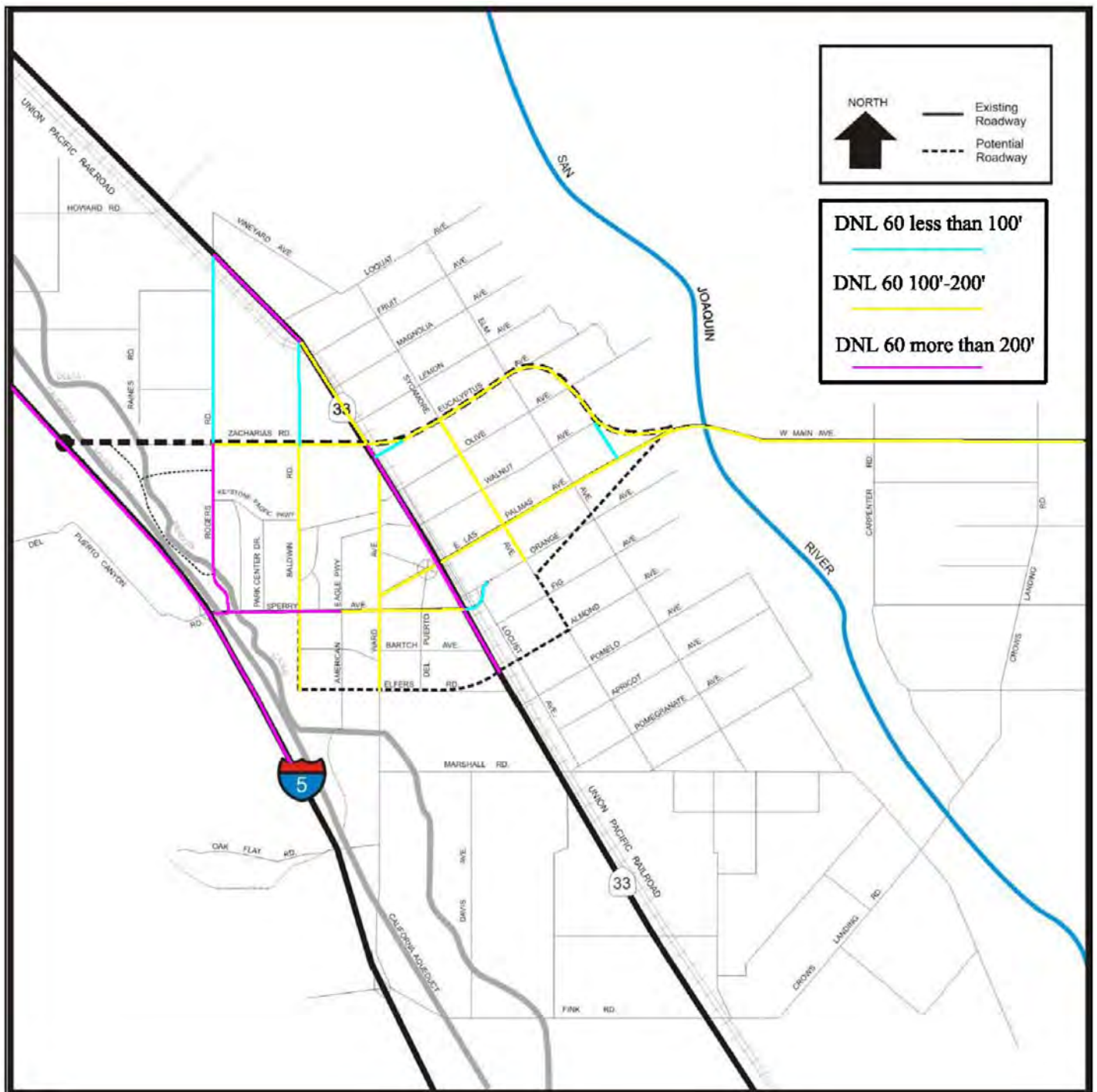


Figure 5.8-5: Distance to 60 dB DNL Contour for the 20-Year Timeframe for the Planning Commission Environmental review Alternative

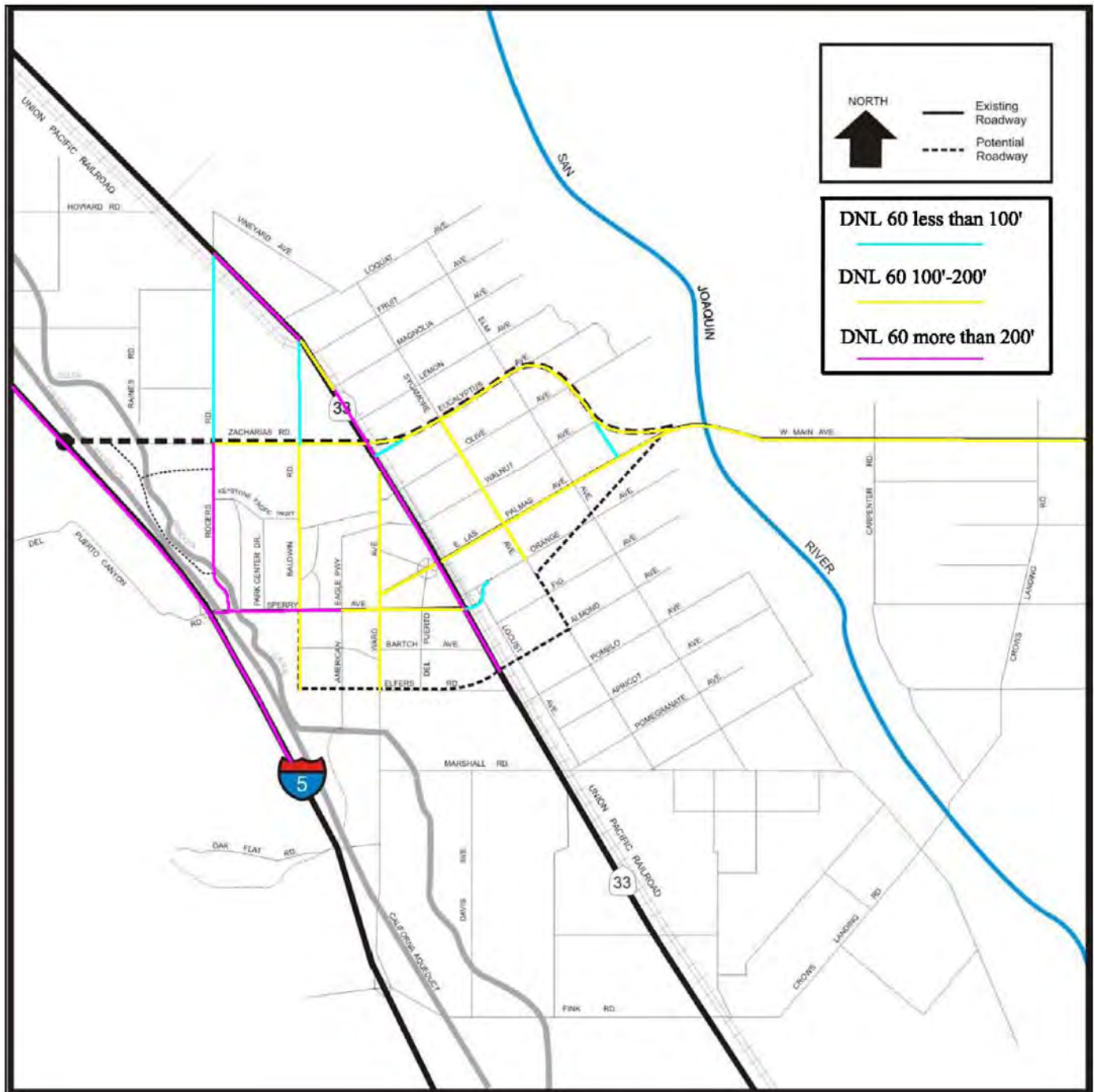


Table 5.8-4: Right-of-Way Widths for Selected Roadways
Serving Existing Development

Roadway	Right-of-Way Width (feet)
I-5	400
SR-33	80
Rogers Road	100
Sperry Avenue	180
Baldwin Road	90
Las Palmas Avenue	80
Source: City of Patterson	

Table 5.8-5: Generalized 2030 Traffic Noise Exposure For Each Equal-Weight Alternative

Roadway	Segment	DNL @ Typical Setback, dB ¹		
		Compact Development Alternative	Jobs Emphasis Alternative	PC Env Review Alternative
I-5	n/o Sperry Ave.	75.0	75.7	75.0
	s/o Sperry Ave.	76.1	76.2	76.1
SR-33	w/o Baldwin Rd.	68.2	68.0	67.5
	e/o Baldwin Rd.	65.1	65.4	64.9
	n/o Zacharias Rd.	66.4	65.7	67.3
	s/o Zacharias Rd.	67.4	67.5	66.6
	n/o Las Palmas Ave.	66.8	66.9	66.6
	s/o Las Palmas Ave.	66.7	67.3	67.5
	n/o Sperry Ave.	66.6	66.8	67.1
	s/o Sperry Ave.	69.6	69.8	69.7
Rogers Rd.	s/o SR-33	60.0	61.8	61.4
	n/o Sperry Ave.	68.2	69.1	68.4
	s/o Sperry Ave.	61.5	61.4	62.3
Sperry Ave.	w/o Rogers Rd.	65.6	66.8	66.7
	e/o Rogers Rd.	66.5	67.1	66.8
	w/o Baldwin Rd.	67.7	68.0	67.7
	e/o Baldwin Rd.	67.2	67.9	67.6
	w/o Ward Ave.	65.7	66.3	65.6
	e/o Ward Ave.	64.5	65.5	64.8
	w/o SR-33	62.3	63.2	62.1
	e/o SR-33	59.0	60.4	59.2
Baldwin Rd.	n/o Sperry Ave.	62.3	63.6	63.4
	s/o Sperry Ave.	63.3	63.5	63.9
	s/o SR-33	58.4	59.8	58.1
Ward Ave.	n/o Sperry Ave.	61.7	64.4	64.5
	s/o Sperry Ave.	65.7	62.2	62.2
Zacharias Rd.	w/o SR-33	64.5	64.8	64.9
	e/o SR-33	63.0	62.9	63.9
Eucalyptus Ave.	e/o SR-33	60.3	60.3	61.0
Las Palmas Ave	w/o SR-33	62.0	62.6	62.1
	e/o SR-33	64.5	65.5	65.3
	w/o Poplar Ave.	64.0	65.1	63.9
	e/o Poplar Ave.	66.0	66.3	65.6
Sycamore Ave.	n/o Las Palmas Ave.	63.0	63.7	64.0
	s/o Las Palmas Ave.	62.9	63.9	63.2
Poplar Ave.	n/o Las Palmas Ave.	62.1	60.6	61.0
W. Main Ave.	w/o Carpenter Ave.	63.9	64.6	62.7
W. Main Ave.	e/o Carpenter Ave.	63.2	64.2	63.2

Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed.
2. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.

Table 5.8-6: Generalized 2050 Traffic Noise Exposure For Each Equal-Weight Alternative

Roadway Segment	DNL @ Typical Setback, dB ¹		
	Compact Development Alternative	Jobs Emphasis Alternative	PC Env Review Alternative
I-5 n/o Sperry Ave.	77.1	77.9	77.1
I-5 s/o Sperry Ave.	78.0	78.2	78.0
Rogers Rd. s/o Zacharias	71.0	71.5	71.1
Sperry Ave. e/o Rogers Rd.	68.0	68.0	67.9
Baldwin Rd. n/o Sperry Ave.	62.1	63.4	62.7
Sperry Ave. e/o Ward Ave.	62.5	64.7	64.4
Ward Ave. n/o Las Palmas Ave.	63.2	63.0	63.3
Zacharias Rd. w/o SR-33	68.0	68.1	68.0
SR-33 n/o Zacharias Rd.	67.6	67.8	68.0
SR-33 s/o Walnut Ave.	67.6	68.8	68.3
Ward Ave. n/o Marshall Rd.	65.5	65.7	65.7
SR-33 s/o Sperry Ave.	68.0	68.1	68.1
Las Palmas Ave. w/o Sycamore Ave.	65.5	66.4	66.4
Main St. e/o Carpenter Rd.	65.5	65.5	65.5
Source: Brown-Buntin Associates, Inc.			
Notes:			
1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed.			
2. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.			

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact of transportation noise, including the following:

- HS-4.9 Acoustical analysis required.** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table HS-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are identified in Table HS-2.) (Note: For the purposes of these noise policies, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance.)

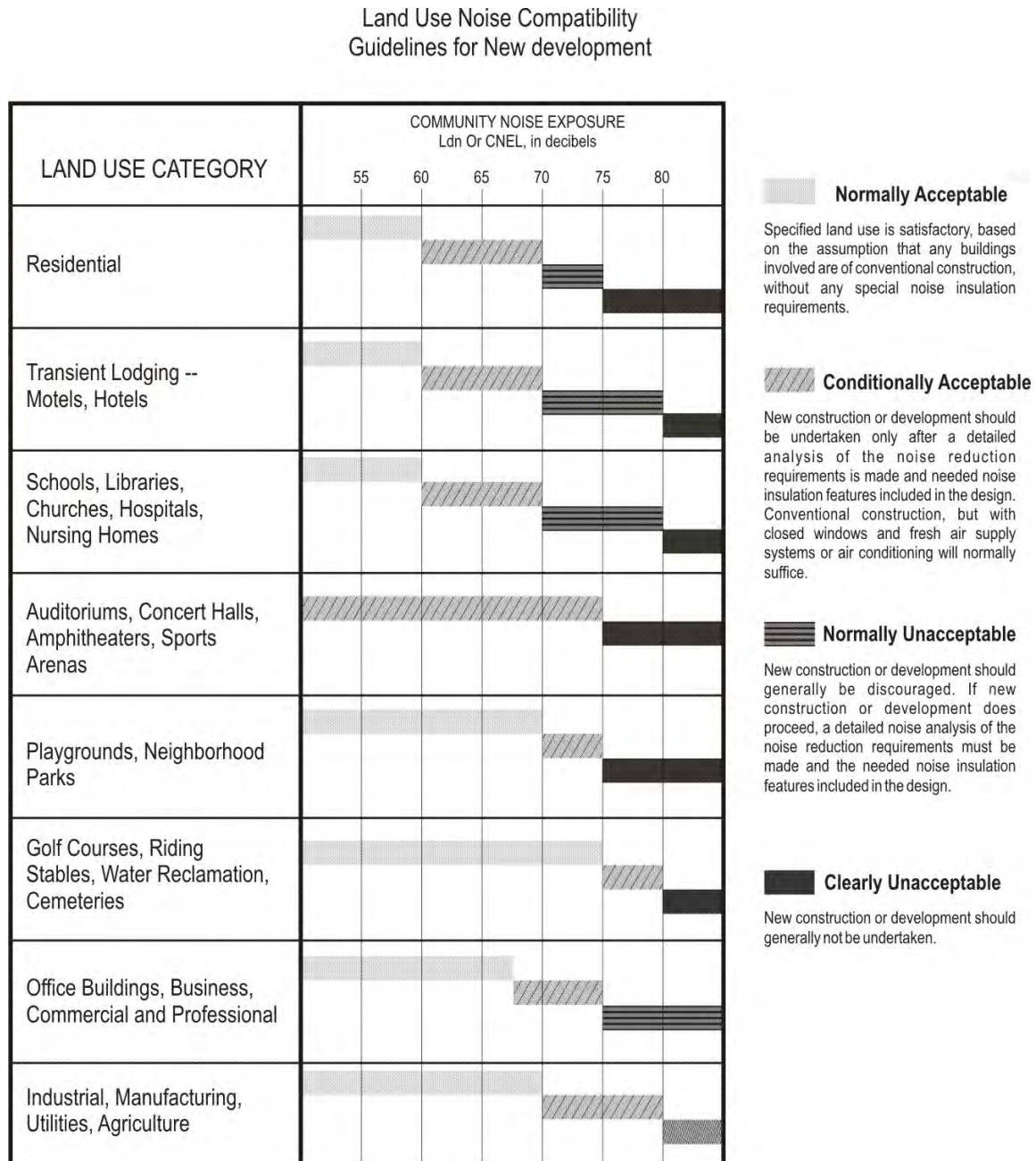
Table HS-2: Requirements For An Acoustical Analysis

An acoustical analysis prepared pursuant to the noise policies of the General Plan shall:

- A. Be the responsibility of the applicant.
- B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
- D. Estimate existing and projected (20 years) noise levels in terms of L- or CNEL and/or the standards of Table 11-3, and compare those levels to the adopted policies of the Noise Element.
- E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
- G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

HS-4.10 Noise standards. The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Figure HS-1.

Table H-1 Noise Compatibility Standards



HS-4.11 Noise sensitive land uses. New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.

HS-4.12 Transportation noise sources and mitigation. Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table HS-3 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.

Table HS-3: Noise Level Performance Standards For New Projects Affected By Or Including Transportation Sources		
Land Use	Outdoor Activity Areas ¹	Interior Spaces
	Ldn/CNEL, DbLdn/CNEL,	dbLeq, Db ²
Residential	60 ³	45
Transient Lodging	60 ³	45
Hospitals, Nursing Homes	60 ³	45
Theaters, Auditoriums, Music Halls		35
Churches, Meeting Halls	60 ³	40
Office Buildings	60 ³	45
Schools, Libraries, Museums		45
Playgrounds, Neighborhood Parks	70	
- 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. - As determined for a typical worst-case hour during periods of use. - Where it is not possible to reduce noise in outdoor activity areas to 60 Db Ldn/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.		

HS-4.13 Acoustical analysis required. Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table HS-1 or the performance standards of Table HS-3, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

HS-4.14 Minimize the use of noise barriers. Where noise mitigation measures are required to achieve the standards of Tables HS-1 and HS-3, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall only be considered a supplemental means of achieving the noise standards after all practical design-related noise mitigation measures have been integrated into the project.

Implementation Measures

- HS-5 The City shall review and revise as necessary its noise control ordinance to regulate existing noise sources.
- HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.
- HS-7 The City shall enforce state noise insulation standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code (UB C). Title 24 requires that an acoustical analysis be prepared for all new developments of multi-family dwellings, condominiums, hotels and motels proposed for areas within the 60 Db Ld], contour of a major noise source for the purpose of documenting that an acceptable interior noise level of 45 Db L- or below will be achieved. TJB/C Chapter 35 requires that common wall and floor/ceiling assemblies within multi-family dwellings comply with minimum standards for the transmission of airborne sound and structure-borne impact noise.
- HS-8 The City shall develop and employ procedures to monitor compliance with noise mitigation standards after projects are completed.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to traffic, noise impacts. New development under the 2010 General Plan can be mitigated to a less than significant impact. However, the existing development will experience an increase in noise, especially from traffic. Therefore, implementation of any of the Equal-Weight alternatives would allow for a substantial increase in traffic which will expose the outdoor activity areas in existing residential neighborhoods to noise that exceeds the City's currently adopted standard. Therefore, this impact is considered **significant and unavoidable**.

Additional Mitigation

The following additional measure is recommended.

- HS-10 Noise contours derived from the acoustical analysis prepared by Brown Buntin Associates, Inc., entitled *Noise Element Update City Of Patterson, Stanislaus County, California, May, 2010* shall be incorporated into the General Plan Noise Element.

No other feasible mitigation are available.

Increased Noise from Rail Traffic

Impact 5.8-3 Development accommodated by the Compact Development, Jobs Emphasis, or PC Environmental Review Alternative within both the 20-year and 40 year buildout growth boundaries would expose future land uses and residents to increased train and rail related noise. This is considered a potentially significant impact.

Rail activity within the City of Patterson is likely to increase in the future. Development of the West Park Specific Plan at the former CLAF facility is expected to generate approximately six train operations per day that would pass through the Study Area. This would represent more than a doubling of existing rail traffic through the City.

Assuming six trains per day, the generalized 60 dB DNL contours would be located at approximately 900 feet from the center of the tracks near grade crossings and 450 feet from the tracks at distances greater than 1,000 feet from a grade crossing. Calculated distances do not take into consideration site-specific conditions such as acoustic shielding or reflections caused by nearby buildings. The future 60 dB DNL is shown in relation to each of the Equal-Weight Alternatives on Figures 5.8-6, 5.8-7 and 5.8-8.

It should be noted that increased rail activity is not a consequence of the City's General Plan. However, future development accommodated by the Equal-Weight Alternatives could be exposed to noise levels that exceed the standards described in Table II-3 of the City's Noise Element, as described below.

Compact Development Alternative

The Compact Development Alternative designates land for additional residential development on the east side of the railroad north of Bartch Avenue and south of Sperry Avenue for the 20 year growth boundary, and on the west side of the railroad right of way between Bartch Avenue and Elfers Road for the 40 year buildout growth boundary. Noise levels in outdoor activity areas within these areas would be exposed to temporary noise levels that exceed the 60 db DNL standard established by the City's currently adopted Noise Element, as shown on Figure 5.8-6.

Jobs Emphasis Alternative

The Jobs Emphasis Alternative designates land for additional residential development on the east side of the railroad north of Bartch Avenue and south of Sperry Avenue within the 20 year growth boundary, and on the west side of the railroad right of way between Bartch Avenue and an area midway between Elfers Road and Marshall Road within the 40 year buildout growth boundary. In addition, the Jobs Emphasis Alternative designates land for residential development on the east side of the tracks north of Eucalyptus Avenue within the 40 year buildout growth boundary, and on the west side of the tracks between Eucalyptus Avenue and a point about midway between Lemon Avenue and Magnolia Avenue. Noise levels in outdoor activity areas within these areas would be exposed to temporary noise levels that exceed the 60 db DNL standard established by the City's currently adopted Noise Element, as shown on Figure 5.8-7.

Planning Commission Environmental Review Alternative

The PC Env Review Alternative designates land for residential development on the east side of the railroad north of Bartch Avenue and south of Sperry Avenue within the 20 year growth boundary, and on the west side of the railroad right of way between Bartch Avenue and an area midway between Elfers Road and Marshall Road within the 40 year buildout growth boundary. In addition, the PC Env Review Alternative designates land for residential development on the east side of the tracks north of Eucalyptus Avenue to Lemon Avenue within the 40 year buildout growth boundary. Noise levels in outdoor activity areas within these areas would be exposed to temporary noise levels that exceed the 60 db DNL standard established by the City's currently adopted Noise Element, as shown on Figure 5.8-8.

Figure 5.8-6: Future 60 dB DNL Contour from Rail Traffic In Relation to the Compact Development Alternative

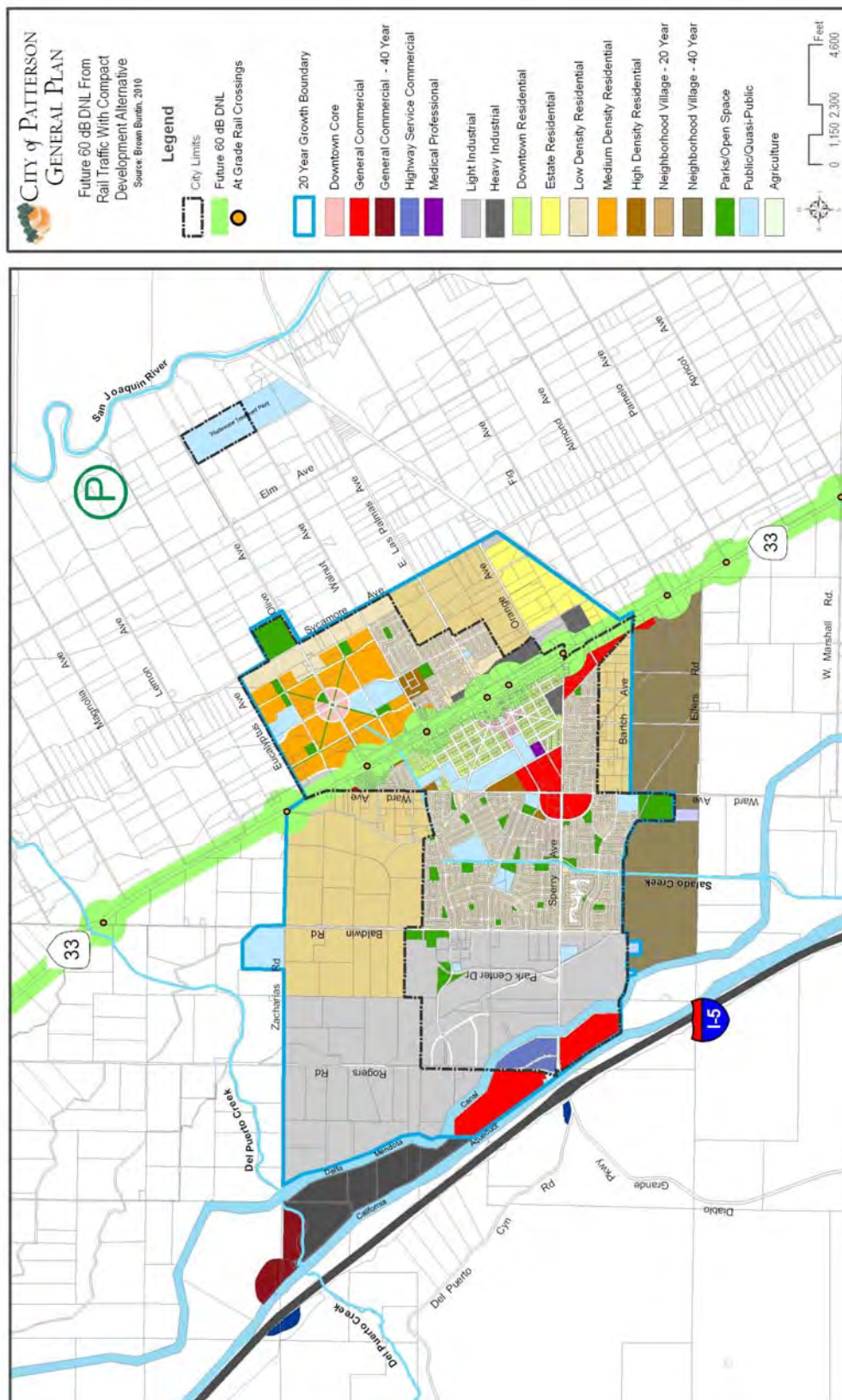


Figure 5.8-7: Future 60 dB DNL Contour from Rail Traffic In Relation to the Jobs Emphasis Alternative

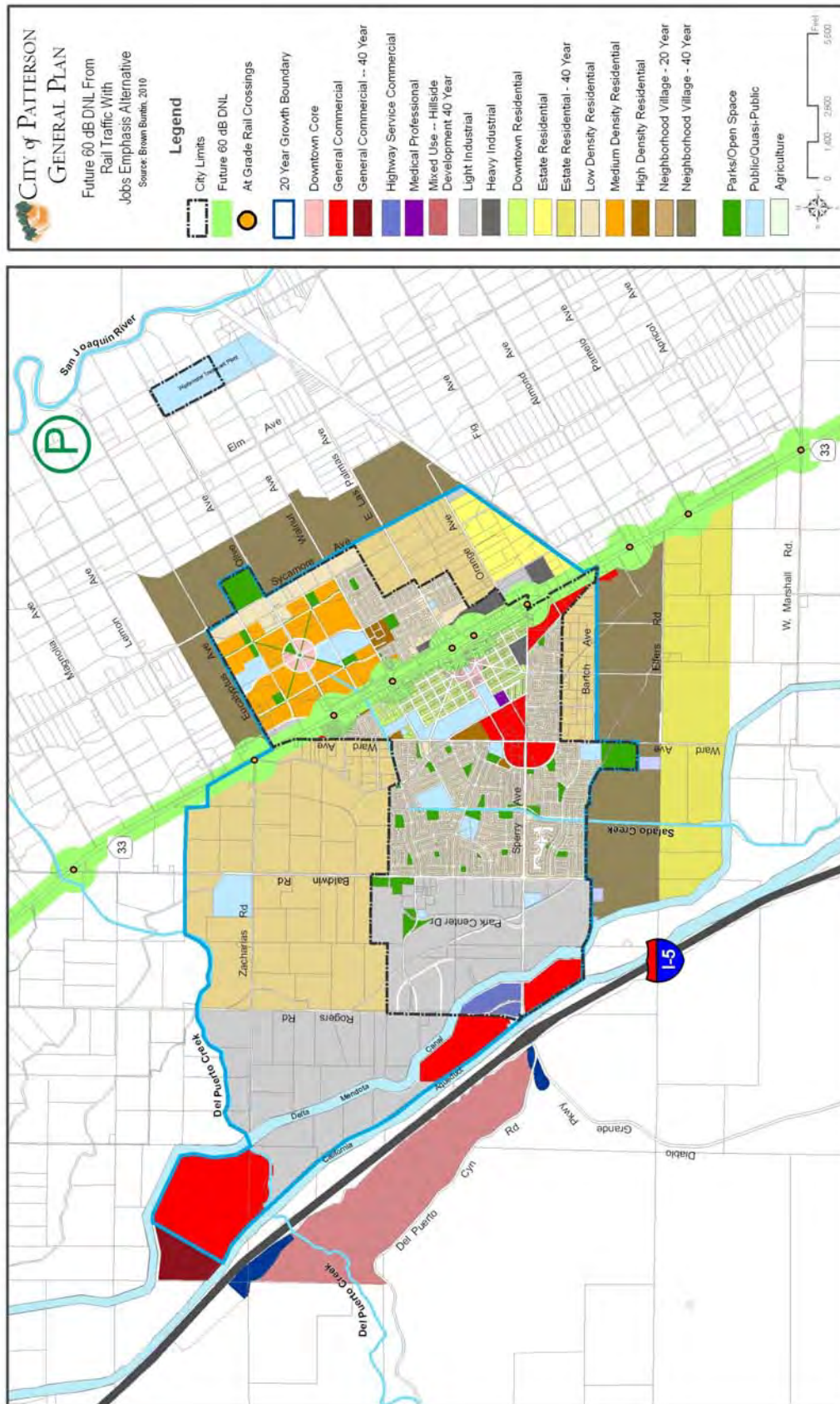
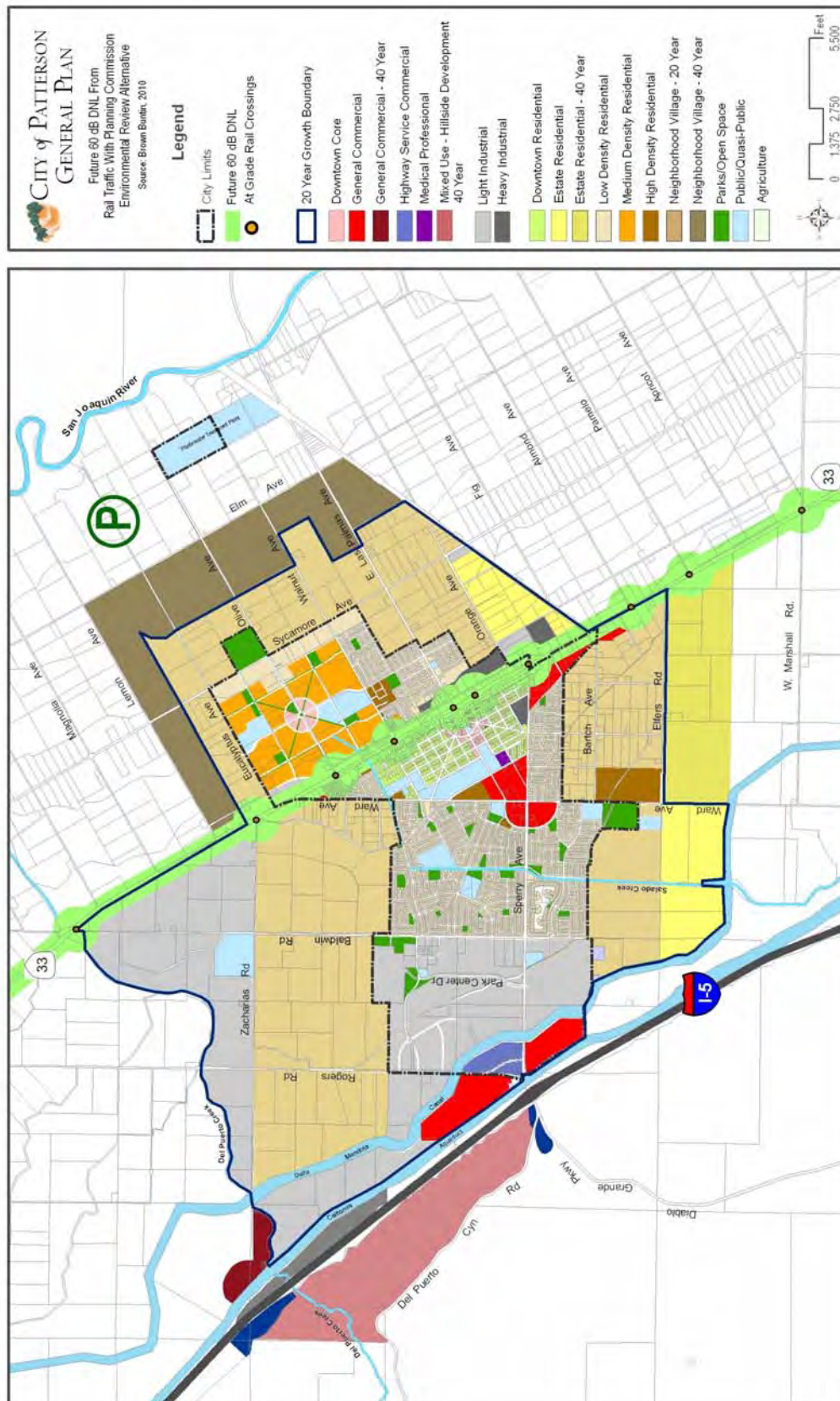


Figure 5.8-8: Future 60 dB DNL Contour from Rail Traffic In Relation to the Planning Commission Environmental Review Alternative



Draft Policy Document Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact of transportation noise, including the following:

- HS-4.9 Acoustical analysis required.** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table HS-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are identified in Table HS-2.) (Note: For the purposes of these noise policies, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance.)

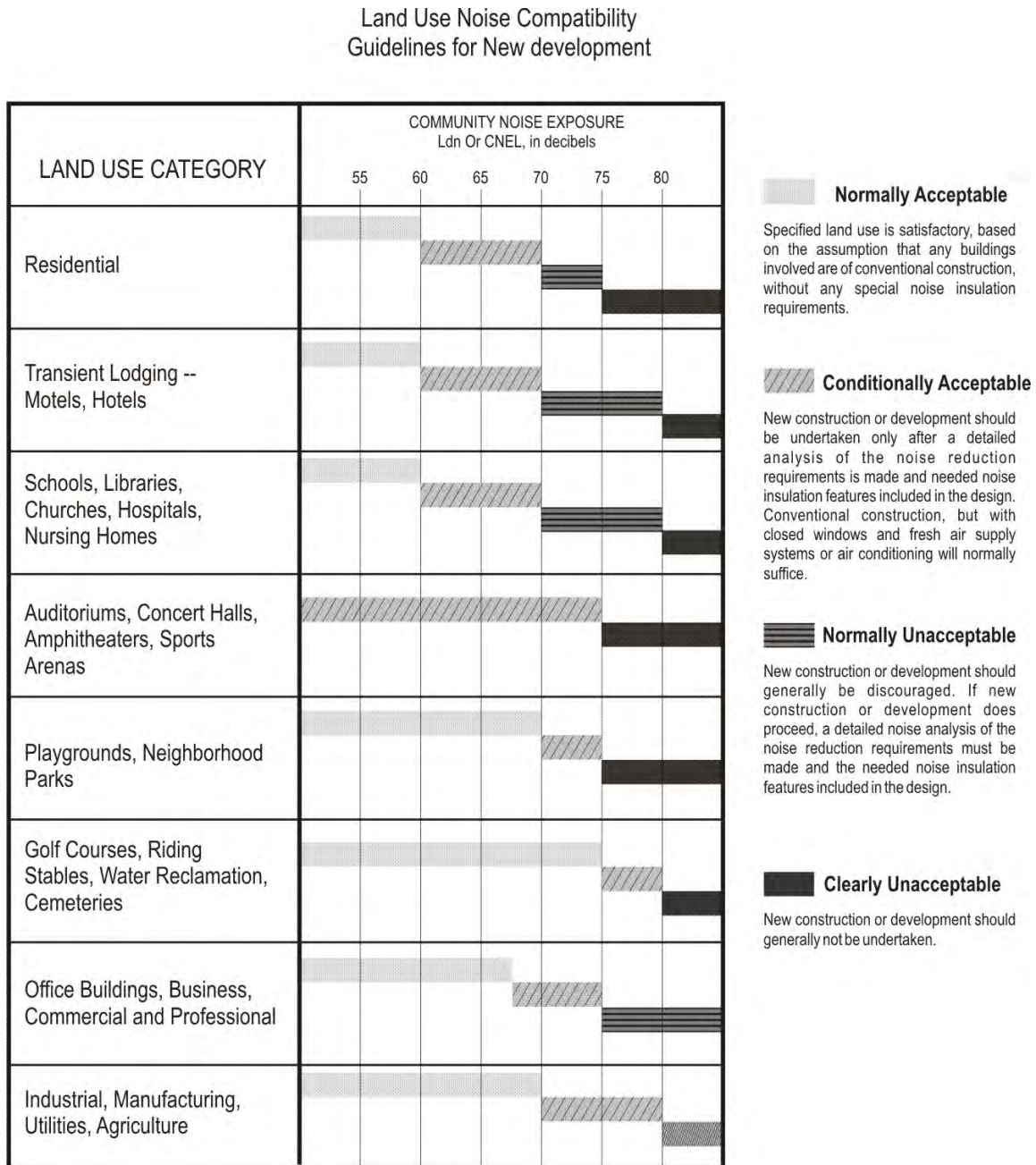
Table HS-2: Requirements For An Acoustical Analysis

An acoustical analysis prepared pursuant to the noise policies of the General Plan shall:

- A. Be the responsibility of the applicant.
- B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
- D. Estimate existing and projected (20 years) noise levels in terms of L- or CNEL and/or the standards of Table 11-3, and compare those levels to the adopted policies of the Noise Element.
- E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
- G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

HS-4.10 Noise standards. The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Figure HS-1.

Figure HS-1: Noise Compatibility Standards



- HS-4.11 Noise sensitive land uses.** New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.
- HS-4.12 Transportation noise sources and mitigation.** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table HS-3 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.

Table HS-3: Noise Level Performance Standards For New Projects Affected By Or Including Transportation Sources		
Land Use	Outdoor Activity Areas ¹	Interior Spaces
	Ldn/CNEL, DbLdn/CNEL,	dbLeq, Db ²
Residential	60 ³	45
Transient Lodging	60 ³	45
Hospitals, Nursing Homes	60 ³	45
Theaters, Auditoriums, Music Halls		35
Churches, Meeting Halls	60 ³	40
Office Buildings	60 ³	45
Schools, Libraries, Museums		45
Playgrounds, Neighborhood Parks	70	
- 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. - As determined for a typical worst-case hour during periods of use. - Where it is not possible to reduce noise in outdoor activity areas to 60 Db Ldn/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.		

- HS-4.13 Acoustical analysis required.** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table HS-1 or the performance standards of Table HS-3, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.
- HS-4.14 Minimize the use of noise barriers.** Where noise mitigation measures are required to achieve the standards of Tables HS-1 and HS-3, the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall only be considered a supplemental means of achieving the noise standards after all practical design-related noise mitigation measures have been integrated into the project.

Implementation Measures

- HS-5 The City shall review and revise as necessary its noise control ordinance to regulate existing noise sources.
- HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.
- HS-7 The City shall enforce state noise insulation standards (California Administrative Code, Title 24) and Chapter 35 of the Uniform Building Code (UB C). Title 24 requires that an acoustical analysis be prepared for all new developments of multi-family dwellings, condominiums, hotels and motels proposed for areas within the 60 Db Ld], contour of a major noise source for the purpose of documenting that an acceptable interior noise level of 45 Db L- or below will be achieved. TJB/C Chapter 35 requires that common wall and floor/ceiling assemblies within multi-family dwellings comply with minimum standards for the transmission of airborne sound and structure-borne impact noise.
- HS-8 The City shall develop and employ procedures to monitor compliance with noise mitigation standards after projects are completed.

The impact of increased rail activities will be temporary and short term. This, combined with the policies and implementation measures outlined above, will reduce noise impact from rail activities to a **less than significant level**.

Additional Mitigation

None required.

Aircraft Noise

Impact 5.8.4 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives within both the 20-year and 40 year buildout growth boundaries could be exposed to aircraft related noise. This impact is considered less than significant.

It is expected that the Patterson Airport will be converted to a non-airport use in the near future as a result of a General Plan amendment currently under consideration by the City. In the mean time, proposed land uses accommodated by each of the Equal-Weight Alternatives are consistent with the adopted Airport Land Use Plan for the Patterson Airport and the Crows Landing Airfield as discussed in Section 5.12 – Hazards and Hazardous Materials. According to the adopted Airport Land Use Plan (page 18), in some instances, such as approach and climbout extensions) noise and the potential hazard were considered in establishing the list of compatible uses provided in the Airport Land Use Compatibility Listing (Table 5.12-3 in section 5.12-Hazards and Hazardous Materials). In other cases, only noise was considered. Thus, the compatibility listing incorporates noise compatibility in determining the list of compatible, conditionally approvable and prohibited uses.

As discussed in the Setting section, Stanislaus County has proposed that the Crow's Landing Airfield Facility be reopened as a general aviation airport as part of the Stanislaus County public airport system. According to the January 2009 draft of the Crows Landing Airport Land Use Compatibility Plan (ALUCP), the airport would reopen with a single 5,300 foot-long runway with approximately 4,000 annual aircraft operations. In the "ultimate" configuration (20 years+), the airfield would have two parallel runways 6,300 feet long and 200,000 annual operations. Operations would be mostly single- and twin-engine propeller or turboprop aircraft and helicopters, with approximately 10% business jet operations. The airport design aircraft for the ultimate development of the airport is the Gulfstream III business jet.

The above-referenced draft ALUCP establishes two review areas around the CLAF for use by the Stanislaus County Airport Land Use Commission (ALUC) when reviewing proposed developments in the airport environs. Figure 5.8-9 shows Review Areas 1 and 2, both of which extend into the Study Area. Review Area 1 consists of locations where noise and/or safety concerns necessitate limitations on the types of uses. All types of land use actions within Review Area 1 are to be submitted to the ALUC for review to the extent review is required by law. Review Area 2 consists of locations beyond Review Area 1 but within recommended airspace protection /and/or overflight areas. Limits on the height of structures are the only restrictions on land uses within Review Area 2. The additional function of this area is to define an area within which various mechanisms are appropriate to alert property owners about the nearby airport. Within Review Area 2 only land use actions for which the height of objects is an issue is subject to ALUC review⁸.

Noise exposure contours in terms of the CNEL are shown for the ultimate configuration of the CLAF with 200,000 annual operations on Figure 5.8-10. The Jobs Emphasis and PC Environmental Review alternatives designate land south of Elfers Road and north of Marshall Road for Estate Residential development. As shown on Figures 5.8-11 and 5.8-12 the portion of the area designated Estate Residential that lies within the 55 - 60 CNEL dB contour is about 30 acres. The Estate Residential land use category is defined in the Draft Policy Document as follows:

This designation provides for the development of large-lot single family detached homes, secondary units, public and quasi-public uses, and similar and compatible uses. Residential densities shall be in the range of one dwelling unit per 0.5 acres up to one dwelling unit per 3 acres except for parcels subject to the safety or noise restrictions of an adopted Airport Land Use Plan in which case the minimum parcel size shall be 10 acres. This designation assumes an average of 3.00 persons per dwelling unit.

The draft ALUCP contains noise compatibility criteria for a wide variety of residential and non-residential land uses based upon guidelines established by the Federal Aviation Administration (FAA) and State of California Department of Transportation. According to Table 1 on page 2-18 of the Draft Crows Landing Airport Land Use Compatibility Plan, single family dwellings of the type that would be accommodated by the Estate Residential land use category are considered "normally compatible" in this area.

⁸ Crows Landing Airport Compatibility Plan, Draft, January 2009 Mead and Hunt

Crows Landing Airport Compatibility Plan, Draft Noise Compatibility Standards

CHAPTER 2 COMPATIBILITY POLICIES

Land Use	Acceptability	Interpretation/Comments
	Normally Compatible	Normal examples of the use are compatible under the presumption that usage intensity and maximum lot coverage criteria will be met. Atypical examples may require review to ensure compliance with usage intensity and lot coverage criteria. Noise, airspace protection, and/or overflight limitations may apply.
	Conditionally Compatible	Use is compatible if indicated Floor Area Ratio (FAR), Lot Coverage, and other listed conditions are met.
	Incompatible	Use should not be permitted under any circumstances.
Notes ¹ Land uses not specifically listed shall be evaluated using the criteria for similar uses. ² Object Free Area (OFA): Dimensions are established by FAA airport design standards for the runway. * These uses may attract birds or otherwise pose hazards to flight. See Section 2.3, Airspace Protection, for applicable policies.		

Land Use Category ¹	Exterior Noise Exposure (CNEL dB)					Criteria for Conditionally Compatible Uses
	55-60	60-65	65-70	70-75	75-80	
Note: Multiple land use categories and compatibility criteria may apply to a project						
Interior noise level limits shown in yellow cells also apply See Policy 1.1.7						
Outdoor Uses (limited or no activities in buildings)						
Natural Land Areas: woods, brush lands, desert						Compatible at levels indicated, but noise disruption of natural quiet will occur
Water: flood plains, wetlands, lakes, reservoirs						
Agriculture (except residences and livestock): crops, orchards, vineyards, pasture, range land						
Livestock Uses: feed lots, stockyards, breeding, fish hatcheries, horse stables						Exercise caution with uses involving noise-sensitive animals
Outdoor Major Assembly Facilities (capacity ≥ 1,000 people): spectator-oriented outdoor stadiums, amphitheaters, fairgrounds, zoos						Exercise caution if clear audibility by users is essential
Group Recreation (limited spectator stands): athletic fields, water recreation facilities, picnic areas						Exercise caution if clear audibility by users is essential
Small/Non-Group Recreation: golf courses, tennis courts, shooting ranges						Exercise caution if clear audibility by users is essential
Local Parks: children-oriented neighborhood parks, playgrounds						Exercise caution if clear audibility by users is essential
Camping: campgrounds, recreational vehicle/motor home parks						
Cemeteries (excluding chapels)						Compatible at levels indicated, but noise disruption of outdoor activities will occur
Residential and Lodging Uses						
Single-Family Residential: individual dwellings, townhouses, mobile homes, bed & breakfast inns						
Multi-Family Residential						
Long-Term Lodging (>30 nights): extended-stay hotels, dormitories		45				
Short-Term Lodging (≤ 30 nights): hotels, motels, other transient lodging (except conference/assembly facilities)		45	45			
Congregate Care: retirement homes, assisted living, nursing homes, intermediate care facilities		45				
Educational and Institutional Uses						
Family day care homes (≤14 children)		45				
Children's Schools: K-12, day care centers (> 14 children); school libraries		45				
Adult Education classroom space: adult schools, colleges, universities		45	45			Applies only to classrooms; offices, laboratory facilities, gymnasiums, outdoor athletic facilities, and other uses to be evaluated as indicated for those land use categories
Community Libraries		45				
Indoor Major Assembly Facilities (capacity ≥1,000 people): auditoriums, conference centers, concert halls, indoor arenas		45	45			

Table 1

Noise Compatibility Criteria

Crows Landing Airport

Figure 5.8-10: Future Noise Exposure Contours For the Crows Landing Airfield

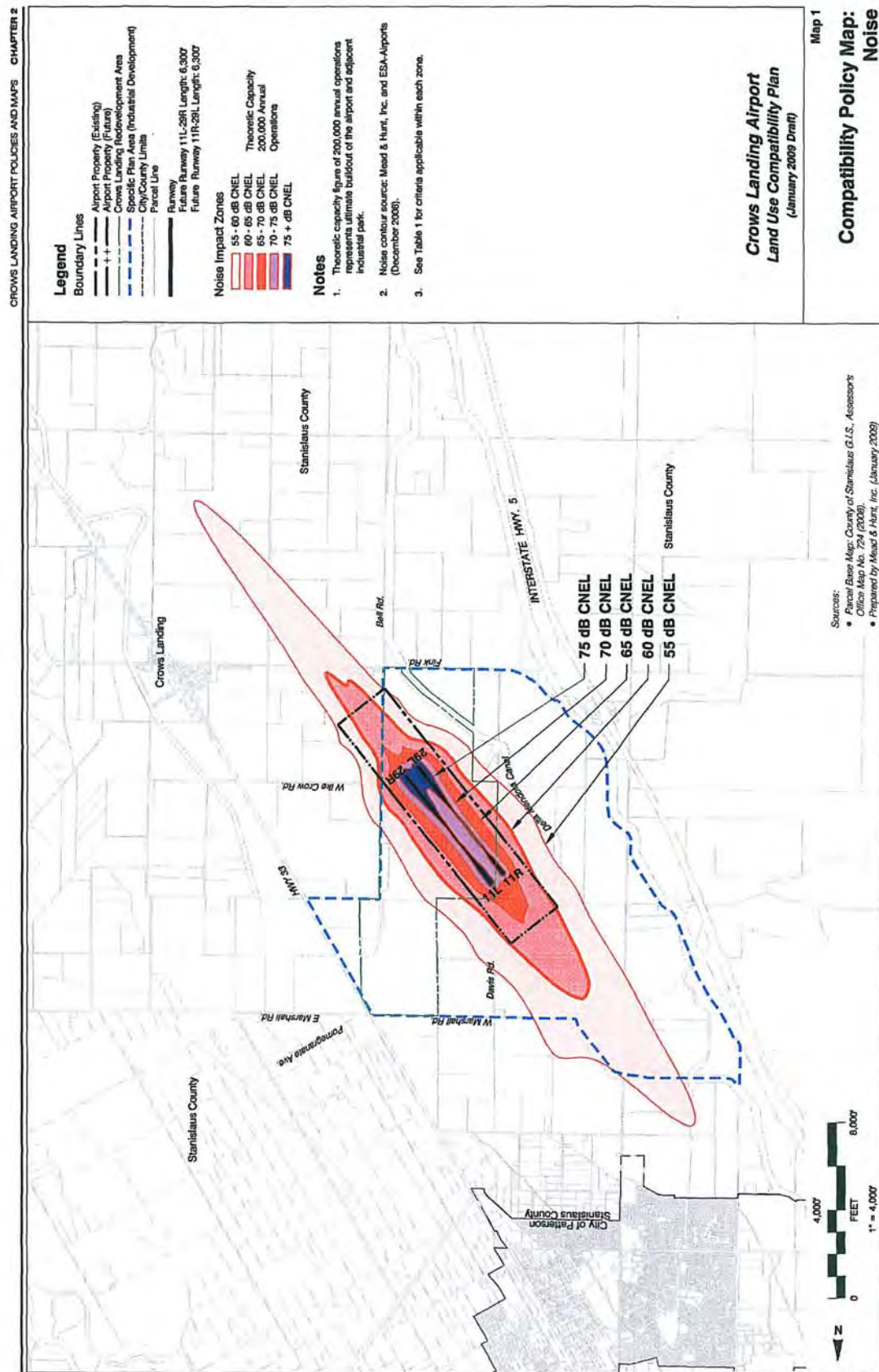


Figure 5.8-11: 55 - 60 db DNL From Draft Crows Landing Airport Compatibility Plan In Relation To the Jobs Emphasis Alternative



Figure 5.8-12: 55 – 60 dB DNL In Relation to the Planning Commission Environmental Review Alternative



Draft General Plan Policy Response

The Draft Policy Document provides the following language for the definition of the Estate Residential land use category:

This designation provides for the development of large-lot single family detached homes, secondary units, public and quasi-public uses, and similar and compatible uses. Residential densities shall be in the range of one dwelling unit per 0.5 acres up to one dwelling unit per 3 acres except for parcels subject to the safety or noise restrictions of an adopted Airport Land Use Plan in which case the minimum parcel size shall be 10 acres. This designation assumes an average of 3.00 persons per dwelling unit.

In addition, the draft Policy Document recommends the following policies.

Policies

- LU-9.1 Airport land use plans.** The City shall continue to ensure that amendments to the General Plan are consistent with applicable adopted airport land use plans.
- LU-9.2 Development within airport land use plan areas.** The City shall ensure consistency with the development restrictions associated with the applicable Airport Land Use Plan for the Crows Landing Airfield by employing strategies that may include (but are not limited to), the following:
- a. Requiring the clustering of residential lots beyond airport land use restriction areas;
 - b. Applying zoning regulations to establish a minimum residential parcel size consistent with the applicable land use restrictions;
 - c. Requiring land within airport restricted areas to be designated as open space or parks;
 - d. Other strategies consistent with the purpose and intent of the Airport Land Use Plan;

As shown on the excerpt from Table of the draft Crows Landing Airport Compatibility Plan, dwellings are considered “normally compatible” uses in the area within the 55 – 60 dB CNEL. Therefore, the land uses proposed in the area subject to 55 – 60 dB CNEL are consistent with the draft Crows Landing ALUP. The recommended land use definition, in addition to the policies described above, would reduce potential noise impacts associated with future airport operations to a **less than significant level**.

Additional Mitigation

None required.

Encroachment of Noise from Stationary Sources

Impact 5.8.5 As additional development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives occurs throughout the Study Area within both the 20-year and 40 year buildout growth boundaries, the potential exists for new noise-sensitive land uses to encroach upon existing or proposed stationary noise sources. As a result, this impact is considered potentially significant.

Development accommodated by the Equal-Weight Alternatives could result in the future development of land uses that generate noise levels in excess of applicable City noise standards. Such land uses may include commercial, industrial, and public and quasi-public uses and could expose existing noise-sensitive land uses to noise levels in excess of the adopted standards listed on Table H-1. In addition, new noise-sensitive land uses could be located in areas of existing stationary noise sources. This impact is considered potentially significant.

Draft Policy Document Response

HS-4.7 Noise levels resulting from non-transportation sources. New development of noise-sensitive uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the noise level standards of Table HS-1, as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table HS-1.

HS-4.8 Noise levels resulting from non-transportation noise sources. Noise levels resulting from non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table HS-1 as measured immediately within the property line of lands designated for noise-sensitive uses. This policy does not apply to noise sources associated with agricultural operations on lands zoned for agricultural uses.

Table HS-1: Noise Level Performance Standards For New Projects Affected By Or Including Non-Transportation Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, Db	50	45
Maximum level, Db	70	65
Note: Each of the noise levels specified above shall be lowered by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).		

- HS-4.9 Acoustical analysis required.** Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table HS-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are identified in Table HS-2.) (Note: For the purposes of these noise policies, transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance.)

Table HS-2: Requirements For An Acoustical Analysis

An acoustical analysis prepared pursuant to the noise policies of the General Plan shall:

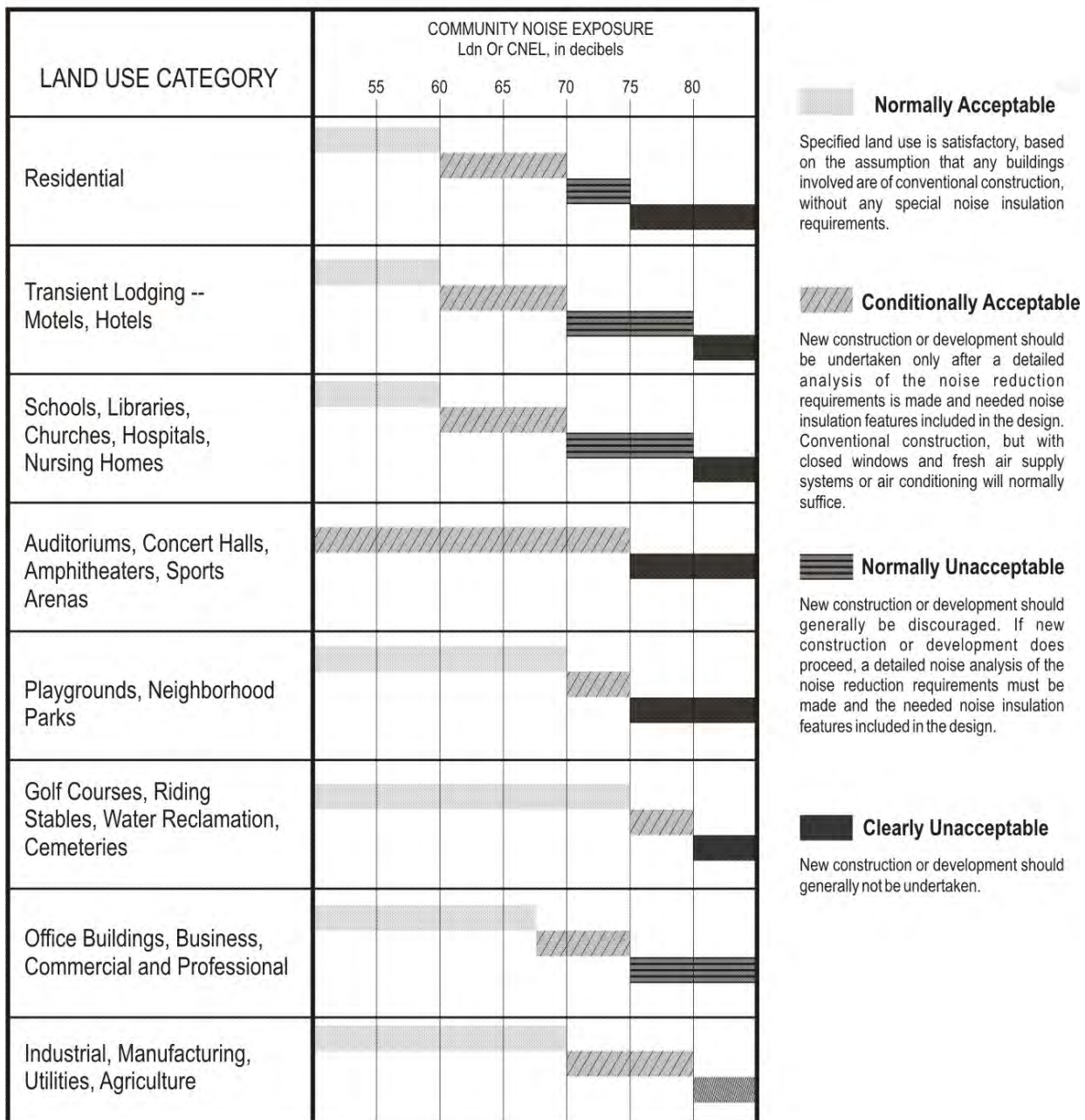
- A. Be the responsibility of the applicant.
- B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
- D. Estimate existing and projected (20 years) noise levels in terms of L- or CNEL and/or the standards of Table 11-3, and compare those levels to the adopted policies of the Noise Element.
- E. Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the noise section of the General Plan. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
- G. Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

- HS-4.10 Noise standards.** The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Figure HS-1.

HS-4.11 Noise sensitive land uses. New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.

Figure HS-1: Noise Compatibility Guidelines

**Land Use Noise Compatibility
Guidelines for New development**



Implementation of the above policies and measures would reduce noise associated with new stationary noise sources and the placement of new noise-sensitive land uses over which the City has jurisdiction (e.g., commercial and industrial sites, residential uses). However, some stationary noise impacts cannot be mitigated to a less than significant level due to limitations on the City to control the exact placement of substantial noise-generating uses (e.g., school facilities) in proximity to noise-sensitive land uses (e.g., residential). Accordingly, stationary source noise levels from activities on uses for which the City has limited control could result in noise levels that exceed the City's maximum allowable noise standards. Thus, this impact is considered **significant and unavoidable**.

Additional Mitigation

No additional feasible mitigation has been identified that would further reduce this impact.

Groundborne Vibration

Impact 5.8.6 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives within the 20-year and 40 year buildout growth boundaries could be exposed to groundborne vibration impacts. This impact is considered less than significant.

The effects of ground vibration can vary from no perceptible effects at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels. At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage.

There are no federal, state, or local regulatory standards for vibration. However, various criteria have been established to assist in the evaluation of vibration impacts. For instance, the California Department of Transportation (Caltrans) has developed vibration criteria based on human perception and structural damage risks. For most structures, Caltrans considers a peak particle velocity (ppv) threshold of 0.2 inches per second (in/sec) to be the level at which architectural damage (i.e., minor cracking of plaster walls and ceilings) to normal structures may occur. Below 0.10 in/sec there is virtually no risk of 'architectural' damage to normal buildings.

Damage to historic buildings could occur at levels of 0.08 in/sec ppv. In terms of human annoyance, continuous vibrations in excess of 0.1 in/sec ppv are identified by Caltrans as the minimum level perceptible level for ground vibration. Short periods of ground vibration in excess of 0.2 in/sec ppv can be expected to result in increased levels of annoyance to people within buildings (Caltrans, 2002b).

Groundborne vibration sources located within the city that could potentially affect future development would be primarily associated with railroad operations. Construction activities could also result in short-term groundborne vibration levels that could affect nearby sensitive land uses. Groundborne vibration levels and associated impacts associated with train travel along area roadways (i.e., UP and BNSF railroads) and short-term construction activities are discussed in more detail, as follows.

Railroads

Groundborne vibration levels associated with railroad operations are dependent on various factors, including track type and condition, train speeds, site conditions, and train characteristics, such as the number of engines, number of cars, weight, and wheel type and condition. Site and geologic conditions can also influence how vibration propagates at increasing distance from the track. Based on Caltrans

vibration measurement data, the highest train vibration level measured was 0.36 in/sec at 10 feet. Based on this level, Caltrans prepared a “drop-off curve” used to estimate maximum train vibration levels at distance from the track centerline. The curve represents maximum expected vibration levels from trains and, thus, is considered by Caltrans to be “very conservative”⁹.

Based on the Caltrans drop-off curve for train vibration levels, predicted maximum groundborne vibrations levels along the Cal Northern railroad corridors would not exceed 0.20 in/sec ppv beyond approximately 7.5 feet from the track centerline, the level above which may cause architectural damage for typical building construction or increased levels of annoyance for individuals in buildings¹⁰. None of the Equal-Weight Alternatives would result in the development of new land uses within 7.5 feet of railroad corridors. As a result, this impact would be considered less than significant.

Construction Activities

With the exception of pavement breaking and pile driving, construction activities and related equipment typically generate groundborne vibration levels of less than 0.2 in/sec, which is the architectural damage risk threshold recommended by Caltrans. Based on Caltrans measurement data, off-road tractors, dozers, earthmovers and haul trucks generate groundborne vibration levels of less than 0.10 in/sec, or one half of the architectural damage risk level, at 10 feet. The highest vibration level associated with pavement breaker was 2.88 in/sec at 10 feet. During pile driving, vibration levels near the source depend mainly on the soil's penetration resistance as well as the type of pile driver used. Impact pile drivers tend to generate higher vibration levels than vibratory or drilled piles. Groundborne vibration levels of pile drivers can range from approximately 0.17 to 1.5 in/sec ppv. Caltrans indicates that the distance to the 0.2 in/sec ppv criterion for pile driving activities would occur at a distance of approximately 50 feet.

However, as with construction-generated noise levels, pile driving can result in a high potential for human annoyance, and pile-driving activities are typically considered as potentially significant if these activities are performed within 200 feet of permanent structures¹¹. This would be mitigated through compliance with Chapter 6.44 of the City's Municipal Code that restricts construction activities to between the hours of 6:00 a.m. and 8:00 p.m. Thus, this impact would be **less than significant**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The setting for the cumulative analysis of noise impacts includes existing, proposed, approved, and planned projects within the current City limits, within the Study Area and within the region. Development in the region identified in Section 4.0 would change the intensity of land uses in the vicinity of the City as a result of the Diablo Grande Specific Plan and the West Park Specific Plan. Accordingly, the 20-year and 40 year buildout traffic analysis which served as the basis for the assessment of future transportation-related noise impacts under impacts 5.8-2, 5.8-3 and 5.8-4 included traffic (including rail, motor vehicles and air craft) associated with these projects. This development, in combination with regional growth, would increase traffic noise as well as opportunities for stationary noise conflicts.

⁹ Caltrans, 2002b

¹⁰ Caltrans, 2002b

¹¹ Caltrans, 2002b

Cumulative Impacts

Impact 5.8-7 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review alternatives within the 20-year or 40 year buildout growth boundaries along with development in the region will result in increased noise conflicts. This is considered a cumulatively considerable and a significant and unavoidable impact.

The projection of future noise within the 20-year and 40 year buildout growth boundaries includes noise associated with the contribution from motor vehicles, rail and aircraft sources associated with regional development. Accordingly, the analysis of noise provided in impacts 5.8-2, 5.8-3, 5.8-4 and 5.8-5 provides a cumulative analysis in that it includes the growth in background noise and noise associated with cumulative development. Buildout of the Study Area in accordance with any of the Equal-Weight Alternatives would result in additional traffic along area roadways and result in increased noise. In addition, buildout could result in additional stationary noise conflicts beyond anticipated development by the 20-year and 40 year buildout timeframes. The cumulative impact of the growth in background noise, together with noise associated with regional development, is considered cumulatively considerable.

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The draft policies listed above for Project Impacts will help mitigate regional impacts relating to noise from transportation and stationary sources. However, cumulative impacts will remain **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

None available.

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- Federal Transit Administration, Transit Noise and Vibration Impact Assessment, April 1995.
- Mead and Hunt, Draft Crows Landing Airport Land Use Compatibility Plan, January 2009
- State of California, Governor's Office of Planning and Research, General Plan Guidelines, Appendix A: Noise Element Guidelines, November 1998.
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- State of California Department of Transportation (Caltrans). 2002a. California Airport Land Use Planning Handbook.
- State of California Department of Transportation (Caltrans). 2002b. Transportation Related Earthborne Vibrations
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- United States Environmental Protection Agency "Noise From Construction Equipment and Operations, Building Equipment, and Home Appliances" NTID 300.1, EPA, December, 1971
- United States Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. 1974

5.9 GEOLOGY AND SOILS

Introduction

This section discusses the geologic, soil, and related hazards of the General Plan Study Area and identifies the related potential environmental impacts and development constraints if the Equal-Weight Alternatives were implemented. This analysis is based on a review of applicable law, local planning documents, and publications by the California Department of Conservation, California Geological Survey (formerly the Division of Mines and Geology), and the Division of Oil, Gas, and Geothermal Resources.

Environmental Setting

Topography and Local Geology

The City of Patterson and the General Plan Study are located in the Great Valley Geomorphic Province of California, more commonly referred to as the San Joaquin Valley. The San Joaquin Valley is made up largely of alluvial fans sourced from the Sierra Nevada Range to the east, the Coastal Range to the west, and to some degree the Tehachapi Mountains to the south. Weathering of these mountain ranges combined with surface water flows and flooding have resulted in accumulation of alluvial (river), lacustrine (lake), and marine (ocean) deposits throughout the San Joaquin Valley at extreme depths.

The Study Area is situated mostly on dry, treeless alluvial fans that drain east to the San Joaquin River. West of Interstate 5, the Study Area consists of the treeless foothills that form the eastern edge of the Diablo Range, while a riverine strip along the western bank of the San Joaquin River forms its northeastern edge. The Sacramento-San Joaquin Delta is 20 miles to the north, but the gentle gradient of the bottomlands produces meandering river courses, cutoff oxbows, and localized marshes. The only other significant drainage is Del Puerto Creek, an intermittent stream that exits the Diablo Range and flows northeast to the San Joaquin. The 1947 Orestimba 15 minute quadrangle shows that Black Gulch, an even smaller intermittent creek, debouched on the fans west of Patterson, and did not flow as far east as the San Joaquin River. Salado Creek formerly flowed to the San Joaquin to the south of the Study Area; it was realigned to run north into the Study Area in historic times.

Landforms range from ancient pre-Quaternary and early Pleistocene hills and alluvial fans along the western boundary, to Middle and Late Holocene alluvial fans and terraces further east, to Latest Holocene terraces along the San Joaquin River and Del Puerto Creek. Soils are largely alluvial in origin, particularly east of Interstate 5. West of Interstate 5 is a mix of alluvial and colluvial soils. Most alluvial soils are derived from the Coast Range alluvial fans, while a strip up to a kilometer wide in the northeastern Study Area borders the San Joaquin River.

Soils

Stanislaus County occupies a portion of the northern San Joaquin Valley, extending from the foothills of the Sierra Nevada to the ridge of the Diablo Range. The County can be geologically divided into what is commonly referred to as the eastside (approximately two-thirds of the county) and the westside (approximately one-third of the county). This division is based on the two predominant types of soils. The San Joaquin River forms a natural divider between these two types of soils. All of the soils on the west side are of recent alluviums: loams, clay loams, and clays washed out from the coastal range of mountains. These soils are different from eastside soils because the parent material is fine-grained

sandstones and shales. As a result, these soils tend to be fine textured as opposed to the coarser soils of the eastside.¹

All soils have certain engineering properties and characteristics such as erosion potential, shrink-swell behavior, and permeability, which determine their suitability and constraints for building sites, loads, grading, and drainage systems.

The soils in Patterson have been mapped by the Natural Resources Conservation Service (Figure 5.9-1). The geologic units in the San Joaquin River basin include the Tulare Formation, terrace deposits, alluvium, and flood-basin deposits. The Tulare Formation consists of soil beds, lenses, and tongues of clay, sand, and gravel. Terrace deposits are composed of yellow, tan, and light-to-dark brown silt, sand. According to the NRCS, the soils underlying the Study Area are well drained to moderately well drained (USDA 2009). A summary of the soil types present within the Study Area, and their associated limitations for the construction of dwellings, is provided in Table 5.9-1, below.

As seen in Table 5.9-1, the most common soil types within the Study Area are Capay Clay, followed by Vernalis loam and Stomar clay loam. The descriptions of the soils provided in Table 5.9-1 suggest that almost all of the soils within the Study Area exhibit a degree of expansiveness (shrink-swell) that requires remediation in the form of soil preparation and/or special design of building foundations as would be required by applicable sections of the Uniform Building Code. In addition, soils west of Interstate 5 within the foothills of the Diablo Range, which include the Wisflat-Arburua-San Timoteo and Calla-Carbona Complex, are characterized as having steep slopes (greater than 15%), expansiveness, and shallow bedrock (< 20"). According to the NRCS, these soils pose the greatest limitations for the construction of dwellings within the Study Area.

¹ Stanislaus County, General Plan, Agricultural Element, Appendix A, p. A-3, 1992.

Table 5.9-1: Soils Within the General Plan Study Area

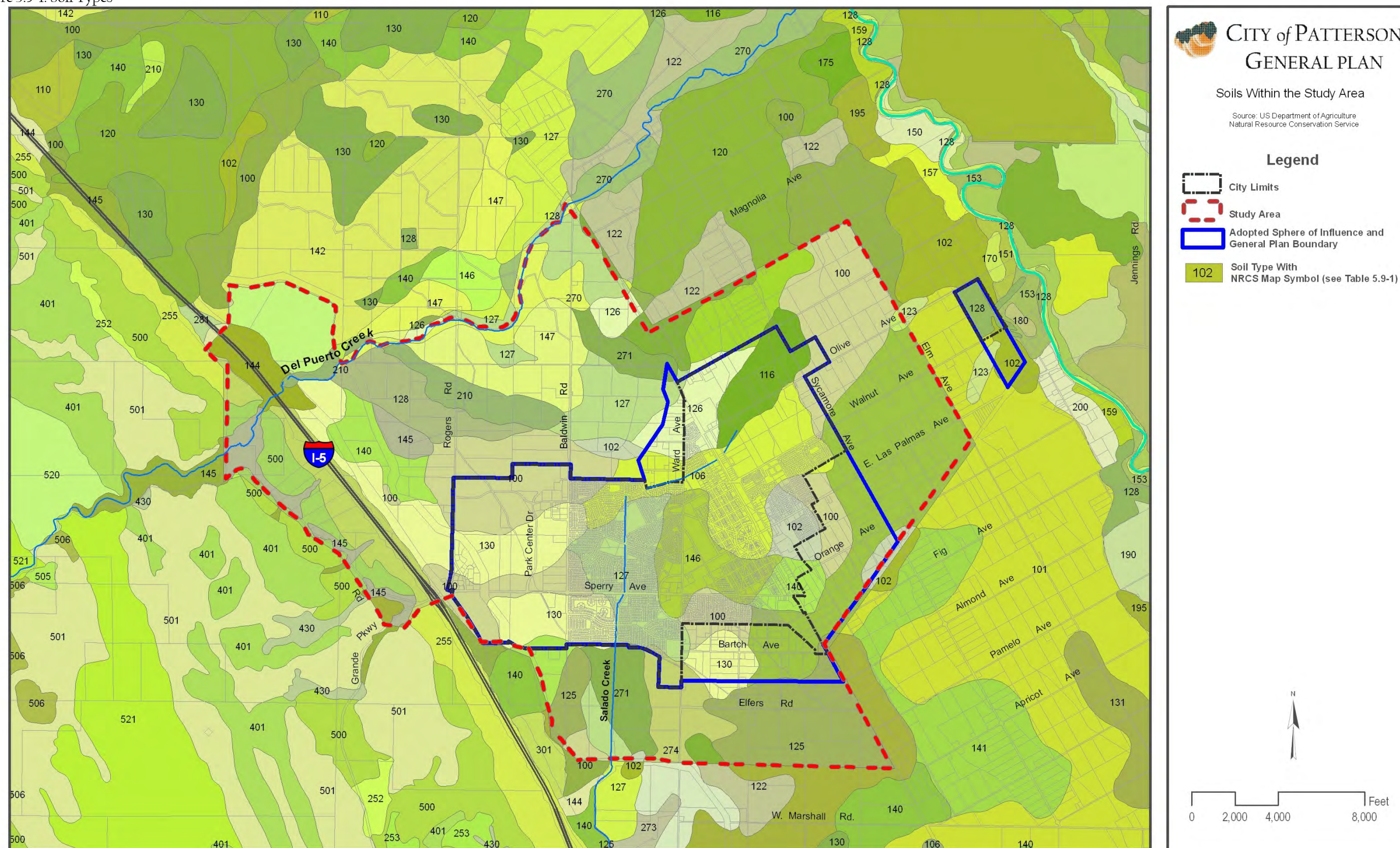
Soil Type	NRCS Map Symbol ¹	Development Limitations ²	Severity Of Limitations ³	Acres	Percent of Study Area
Capay Clay	100	Shrink-swell	1.0	1,970	15.43
Capay Clay wet	101	Shrink-swell	1.0	1,359	10.64
Capay Clay, loamy substratum	102	Shrink-swell	1.0	271	2.12
Capay Clay, 0- 2% slope, rarely flooded	106	Shrink-swell rarely flooded	1.0 1.0	805	6.30
El Soylyo silty clay loam	116	Shrink-swell, rarely flooded	1.0 1.0	293	2.29
Vernalis-Zacharias complex, 0-2% slopes	120	Shrink-swell	0.5	304	2.38
Vernalis loam, 0 - 2% slope	122	Shrink-swell	0.5	204	1.60
Vernalis clay loam, wet	123	Shrink-swell	0.5	12	0.09
Vernalis clay loam, 0 - 2% slope	125	Shrink-swell	0.5	794	6.22
Vernalis Zacharias complex, 0-2% rarely flooded	126	Shrink-swell	0.5	387	3.03
Vernalis loam, rarely flooded	127	Shrink-swell	0.5	1,173	9.19
Stomar clay loam	130	Shrink-swell	1.0	1,095	8.58
Zacharias clay loam, 0-2% slope	140	Shrink-swell	1.0	470	3.68
Zacharias gravelly clay loam	142	Shrink-swell	0.5	327	2.56
Zacharias gravelly clay loam 2-5% slope	144	Shrink-swell	0.5	194	1.52
Zacharias clay loam, 2 - 5% slope	145	Shrink-swell	0.5	278	2.18
Zacharias clay loam, 0 - 2% slopes rarely flooded	146	Shrink-swell	0.5	404	3.16
Zacharias gravelly clay loam, rarely flooded, 0-2%	147	Shrink-swell	0.5	499	3.91
Cortina gravelly sandy loam	210	Flooding >= rare	1.0	283	2.22
Calla-Carbona complex	255	Slopes > 15%, Shrink-Swell	1.0 1.0	419	3.28
Elsalado loam	270	Flooding >= rare	1.0	240	1.88
Elsalado loam, rarely flooded	271	Flooding >= rare	1.0	389	3.05
Elsalado loam, 0-2% slopes	274	Flooding >= rare	1.0	292	2.29
Wisflat-Arburura-San Timoteo complex, 20-50% slopes	500	Soft bedrock <20" Hard Bedrock < 20" Slopes >15%	1.0, 1.0 1.0	306	2.40
Total:				12,768	100.00

Source: US Department Agriculture, Natural Resource Conservation Service, Web Soil Survey, 2010

Notes for Table 5.9-1:

1. See Figure 5.9-1.
2. The limitations for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. The properties that affect ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or cemented pan, and the amount and size of rock fragments.
3. Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0,01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation.

Figure 5.9-1: Soil Types



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Seismic Hazards

Although there are several faults in and around Stanislaus County, faults within the County have not experienced major seismic activity since 1881 when an earthquake of estimated 6.3 Richter magnitude struck the western portion of the County². In 1931, an earthquake epicenter of a magnitude greater than 4.0 on the Richter Scale was recorded in Stanislaus County. Since 1931 none have been recorded in the County with a magnitude greater than 4.0. Information furnished by the State Department of Mines and Geology and the State Office of Emergency Services indicate that ground shaking along the numerous major faults in the region (see discussion below) can produce damage within Stanislaus County to reach varying intensities rated on the Modified Mercalli Intensity Scale of 1931 (see Table 5.9-2). The western half of the County which includes the Study Area can expect to receive shaking to an intensity of VII to VIII Mercalli, which can cause considerable damage to ordinary structures. The area around the City of Newman may have shaking intensity of IX or X. This may be considered a major hazard area. On June 27, 1986, an earthquake with a magnitude of 3.7 on the Richter Scale occurred with an epicenter several miles west of Crows Landing. Future earthquakes of similar or greater magnitudes can be expected.³

The Richter Scale is used to measure the magnitude (or strength) of an earthquake, while the Mercalli Scale is used to measure the intensity. Table 5.9-2 describes the effects of the 12 levels of the Mercalli Scale.

Faults

Faults are indications of past seismic activity. It is assumed that those that have been active recently are the most likely to be active in the future, although even inactive faults may not be "dead." The recency of seismic activity is measured in geologic terms. *Geologically recent* refers to a seismic event that has occurred within the past two million years (the Quaternary period). All faults believed to have been active during the Quaternary are considered "potentially active." Those that have exhibited activity within the past 11,000 years are considered "active."

Figure 5.9-2 illustrates the general location of faults in the vicinity of Patterson. Seismic activity on these faults has the greatest potential for causing damage in the Study Area. Seismic activity in other parts of the state can also affect the Study Area, but the potential impacts are not as great.

San Andreas Fault Zone. The San Andreas Fault is one of the longest (approximately 800 miles long), most thoroughly studied, and most active faults in the world. Some sections of the fault in the Central Coast Ranges are creeping at rates as great as 3.7 centimeters per year. Other segments, north and south of the creep areas, exhibit no detectable movement. The fault in those areas appears to be temporarily "locked." It is generally agreed that a "locked" condition allows stresses to accumulate more rapidly, thus shortening the time between major earthquakes.

There is presently movement along some of the fault's length, and numerous smaller earthquakes are recorded from the fault zone. It is generally accepted that moderate to great earthquakes will take place along the San Andreas Fault in the foreseeable future. An earthquake along this fault could cause serious damage in Stanislaus County. The October 1989 earthquake (6.9 magnitude on the Richter Scale) occurred along the San Andreas Fault, with the epicenter located in the Santa Cruz Mountains.

Hayward Fault. The Hayward Fault is located east of San Francisco Bay and extends southeast to where it probably merges with the Calaveras Fault north of Hollister. A review of the recent history of this fault shows two major earthquakes (1836 and 1868), each with an estimated Richter Scale magnitude of 6.5 to

² Toppozada, T. R. and D. Branum, 2002

³ Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan, Volume One, 2005

7.5. Current measurements indicate creeping at rates up to one centimeter per year in places. Numerous small earthquakes (Richter Scale magnitude of 3 to 5) have occurred along this fault in recent years.

San Joaquin Fault Zone. The San Joaquin Fault runs northwest to southeast, and generally follows a path through the western portion of Patterson. The fault is generally concealed underground, which requires its location to be inferred. The USGS lists the fault as being Late Quaternary, and estimates its most recent movement at 10,000 to 700,000 years ago. This time period indicates that the fault could be potentially active. Because of the fault's age, no additional information could be obtained.

Calaveras Fault. The Calaveras Fault borders the eastern flank of the Berkeley-Hayward Hills, and extends to the southeast. Epicenters of recent earthquakes of Richter Magnitude of 4.5 have been located along or near this fault. In 1868, an earthquake of unknown magnitude caused ground breakage near Danville. Several centimeters of creep have been measured in Hollister, where a Calaveras Fault trace-cuts through a residential area.

Green Valley-Concord Faults. This fault zone, extending from Walnut Creek to west of Fairfield, has experienced displacement along most of its length within recent geologic time. An earthquake of 5.4 magnitude occurred in 1955 along part of this fault near Concord. There is currently evidence of some movement along the fault near Concord. The greatest probable earthquake generated by this fault is not expected to exceed a magnitude of 7.0 on the Richter Scale.

Midland Fault. The Midland Fault, buried under recent alluvium, extends north from Bethel Island in the Delta to east of Lake Berryessa. Its activity is not as well documented as the faults discussed previously. There is evidence, however, that fault displacement has occurred during recent geologic time. The State Division of Mines and Geology believes that the Midland Fault is a possible source of a major earthquake centered in Vacaville in 1892. The maximum probable earthquake on this fault is estimated to be 7.0 on the Richter Scale.

Patterson Pass Fault. The Patterson Pass Fault runs northwest from the Alameda/San Joaquin County boundary toward Livermore. Its location is imprecise and the nature of movement, if any, is uncertain. The fault is cited because of one well-located epicenter generating a 4.5 magnitude earthquake in 1946.

Figure 5.9-2: Regional Fault Systems

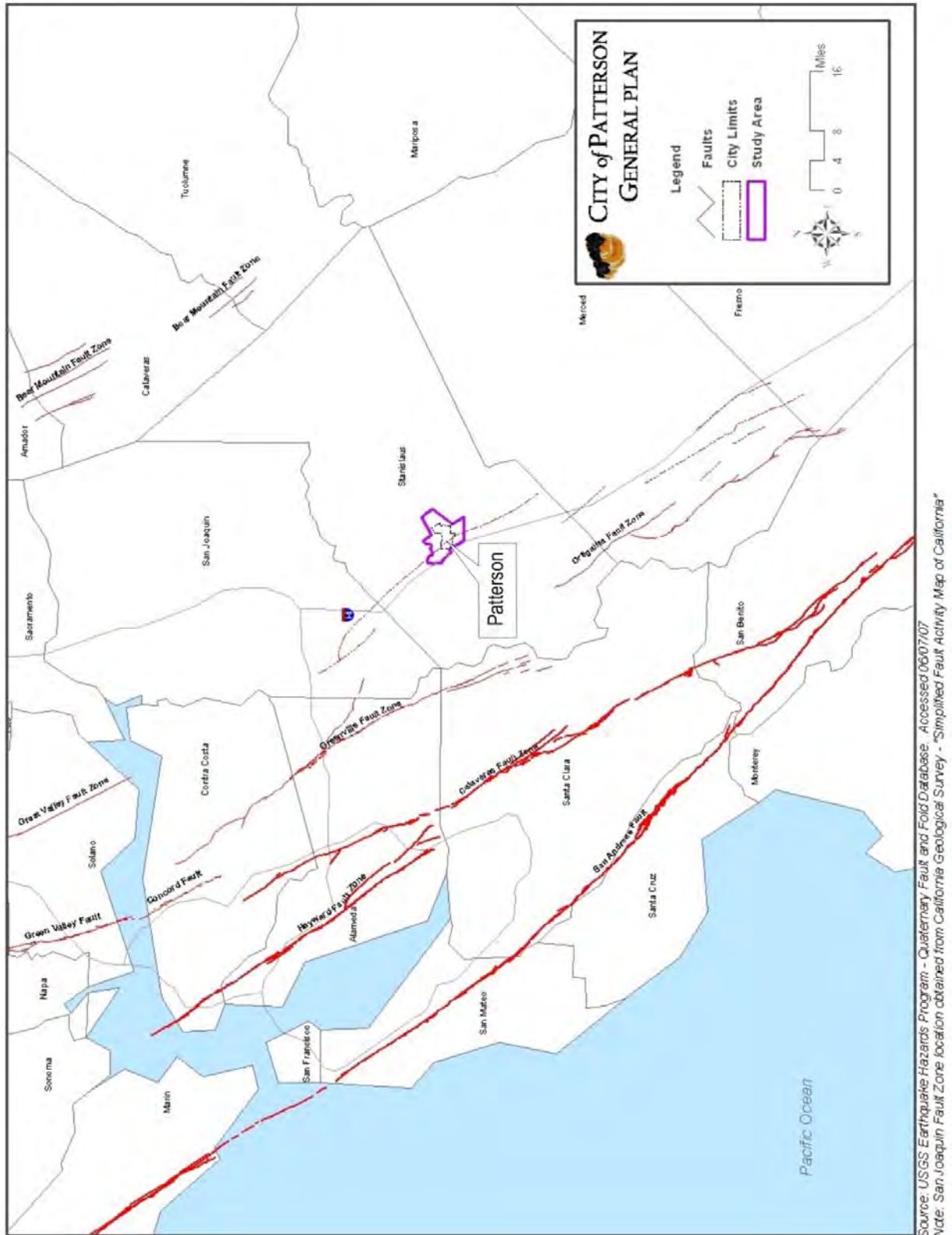


Table 5.9-2:
Relationship of Earthquake Magnitude to Earthquake Intensity

Richter Scale Magnitude	Typical Maximum Modified Mercalli Intensity	Modified Mercalli Intensity Scale Description
1.0 - 3.0	I	
3.0 - 3.9	II - III	I. Not felt except by a very few under especially favorable conditions. II. Felt only by a few persons at rest, especially on upper floors of buildings. III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4.0 - 4.9	IV - V	IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop. VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
5.0 - 5.9	VI - VII	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.
6.0 - 6.9	VII - IX	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.
7.0 and higher	VIII or higher	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.

Tesla-Ortogonal Faults. Within the Diablo Mountain Range, the most recent movements along this fault were approximately five million years ago, although earthquake activity without surface fracturing or faulting is still common. Active seismicity has been identified along some segments of the fault zone. A Richter magnitude 5 earthquake in 1926, a magnitude 3.7 in 1981, and smaller earthquakes monitored from 1969 to 1980 occurred in the vicinity of this fault zone. According to a report produced by the California Division of Mines and Geology (now the California Geological Survey) at the end of 1991, the Tesla-Ortogonal fault zone was determined to have no known damaging earthquakes. The fault zone is considered capable of generating earthquakes of Richter magnitude 6.5 to 6.75. The recurrence of earthquakes resulting in surface rupture is on the order of 5,000 to 10,000 years for the entire fault zone.

An Alquist-Priolo Special Studies Zone is located along the Ortogonal Fault in the Diablo Range and extends into Stanislaus County about seven miles at its southwest edge; however, sufficient evidence of recent fault rupture on this segment has not been identified to warrant zoning under the Alquist-Priolo Act⁴. The lower portion of the fault range, the Tesla Fault has been interpreted as being a remnant of an older, inactive fault system.

Bear Mountain Fault. The Bear Mountain Fault Zone is located east of Stanislaus County. Traces of the fault are present in Amador, Calaveras, and Tuolumne Counties. The fault is classified as pre-quaternary, and considered to be inactive due to its age and last believed movement.

Assessment of Potential Seismic Hazards

The California Geological Survey has produced an earthquake hazard map which shows Patterson in the moderate severity zone. The moderate zone classification indicates that Patterson is in a region near major, active faults that have the potential to cause moderate to severe damage.

Groundshaking

The most serious direct earthquake hazard is the damage or collapse of buildings and other structures caused by groundshaking which is the vibration which radiates from the epicenter of an earthquake. Damage to structures from groundshaking is caused by the transmission of earthquake vibrations from the ground into the structure. The intensity of the vibration or shaking and its potential impact on buildings and other urban development is determined by several factors:

- The nature of the underlying materials, including rock and soil;
- The structural characteristics of a building;
- The quality of workmanship and materials used in its construction;
- The location of the epicenter and the magnitude of the earthquake; and
- The duration and character of the ground motion.

The effects of groundshaking can be damaging well beyond the fault trace that generates the shaking. For example, the segment of the San Andreas Fault which caused the great damage and destruction in San Francisco in 1906 was offshore, beyond the Golden Gate.

Most of Patterson is located on alluvium deposits of varying depths, which can increase the potential from groundshaking damage. As earthquake waves pass from more dense rock to less dense alluvial or water-saturated materials, they tend to reduce in velocity, and increase in amplitude. Ground motion lasts longer on loose, water-saturated materials than on solid rock. As a result, structures located on these types of materials suffer greater damage than those located on solid rock. "Poor ground" can be a greater hazard for structures than close proximity to the fault or epicenter.

⁴ Hart 1990

Older buildings constructed before building codes were in effect, and even newer buildings constructed before earthquake resistance provisions were included in the current building codes, are the most likely to suffer damage in an earthquake. Most of Patterson's buildings are one or two stories high and are of wood frame construction, which is considered the most structurally resistant to earthquake damage.

Older masonry buildings without earthquake-resistant reinforcement are the most susceptible to the sort of structural failure which causes the greatest loss of lives. The susceptibility of a structure to damage from earthquake groundshaking is also related to the foundation material underlying the structure. A foundation of rock or very firm material intensifies short period motions, which affect the low-ridged buildings more than tall, flexible ones. A deep layer of water-logged soft alluvium may cushion low-ridged buildings, but accentuate the motion in tall buildings. The amplified motion resulting from softer alluvium soils can also severely damage older masonry buildings.

Other potentially dangerous conditions include building projections which are not firmly anchored, such as parapets and cornices. These projections could collapse during periods of strong and/or sustained groundshaking.

Fire is often the major form of damage resulting from groundshaking effects. Ninety percent of the destruction in the 1906 San Francisco earthquake was caused by fire. This devastation resulted largely from the great number of buildings constructed of combustible materials, damage to much of the city's fire fighting facilities, and the rupture of water mains.

Most earthquake-induced fires start because of ruptured power lines, damage to wood, gas, or electrical stoves, and damage to other gas or electrical equipment. This points out the need for greater emphasis on non-combustible material and on special construction techniques so that water mains will remain unbroken during large earthquakes. Critical facilities, such as hospitals and fire stations, should be sited, designed, and constructed to withstand severe groundshaking.

Fault Rupture

The State of California passed the Alquist-Priolo Earthquake Fault Zoning Act in 1972 in order to reduce hazards to structures from surface faulting. The 1971 San Fernando earthquake resulted in extensive surface ruptures, which caused substantial damage to structures in the vicinity. As a response, the Alquist-Priolo Earthquake Fault Zoning Act was adopted to prevent the construction of buildings intended for human occupancy within the surface trace of active faults. The act requires the State Geologist to establish regulatory zones around the surface traces of a fault. Local jurisdictions (counties, cities, etc.) are required to regulate development within these zones, preventing most structures. Single-family wood and steel frame buildings up to two stories in height are exempt from these regulations. However, local jurisdictions may adopt more restrictive regulations than those set forth in the Act. As part of compliance with the Alquist-Priolo Act, the State Geologist has published a list of counties, cities, and state agencies that are affected by Alquist-Priolo Fault Zones. The City of Patterson does not appear on this list.

Ground Failure

In addition to structural damage caused by groundshaking and fault rupture, there are other ground effects caused by the shaking. These are known as ground failure effects and include liquefaction, settlement, lateral spreading, lurch cracking, and earthquake induced landslides.

Liquefaction is the loss of soil strength due to seismic forces acting on water-saturated granular soils. This loss of strength leads to a "quicksand" condition which causes many types of ground failure. When the liquefied granular layer occurs at the surface, objects can either sink or float depending on their density. The evaluation of potential for liquefaction is complex and must consider soil type, soil density,

groundwater table, and the duration and intensity of shaking. Liquefaction is most likely to occur in deposits of weak saturated alluvium or similar deposits of artificial fill. Liquefaction potential within Patterson exists in low-lying areas composed of unconsolidated, saturated, clay-free sands and silts.

Patterson is theoretically subject to liquefaction resulting from earthquakes on several faults. The expected degree of earthquake-caused shaking is, however, relatively low, and it is unlikely that significant liquefaction would occur.

Settlement is the compaction of soils and alluvium caused by groundshaking. It occurs irregularly and may be partly controlled by bedrock surfaces, and old lake, slough, swamp, and stream beds. The amount of compaction may range from a few inches to several feet. Irregular compaction is most widespread and extreme in major earthquakes. It may occur as much as 75 to 80 miles from the epicenter and may amount to several feet even at that distance. Compaction is most likely to occur in areas, such as Patterson, which are underlain by soft, water-saturated, low density alluvial material.

Lurch cracking refers to fractures, cracks, and fissures produced by groundshaking, settling, compaction of soil, and sliding and may occur many miles from the epicenter of an earthquake. These effects are characteristic of earthquakes large enough for significant ground motion to occur; the larger the earthquake magnitude, the more extensive the effects. Thus, a major earthquake may damage streets, curbs, sewer, gas, and water lines.

Lateral spreading is the horizontal movement or spreading of soil toward an open face such as a stream bank, the open side of fill embankments, or the sides of levees. Artificial fill areas which are improperly engineered or which have steep, unstable banks are most likely to be affected.

The potential for lurch cracking and lateral spreading is highest in areas where there is a high groundwater table, relatively soft and recent alluvium deposits, and where creek banks are relatively high. Fracture patterns from lurch cracking and lateral spreading may be controlled by the configuration of shallow bedrock structures, by highway surfacing, by the margins of fill, and engineering structures.

Earthquakes can also cause landsliding and slumping. The majority of the Study Area and the areas designated for urban development, are fairly level. However, landsliding and slumping has been documented in the Diablo Range to the west of the City.

Seiches

A seiche is an earthquake-generated wave within enclosed or restricted bodies of water. Major and even moderate earthquakes miles away from Patterson have the potential to produce oscillations or waves in local bodies of water such as levees with the potential to cause water to overtop the bank and temporarily inundate surrounding areas.

The bodies of water most susceptible to seiches in or near Patterson are the San Joaquin River, California Aqueduct, and the Delta-Mendota Canal. The danger of seiches during seismic events is limited to those periods when the river and canals are full during the flood season. Overtopping of levees during this period could cause temporary and limited flooding. However, the probability of a seiche occurring in one of the canals or the San Joaquin River is considered minimal. The Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan states that an earthquake of sufficient magnitude could cause a seiche in one or more of the County's large reservoirs and that the most severe hazard would exist if a seiche occurred while many people were using the reservoir for recreation. The Hazard Mitigation Plan provides no assessment of the potential hazard associated with a seiche occurring in one of the canals.

Landslide and Erosion Hazards

Historically, a number of major slides have occurred throughout the Diablo Range in Stanislaus County. The steep slopes and unstable geology of the area presents a limitation to building, and the hazards would be exacerbated by earthquakes. Most of the developed portion of the City is level and landslides are not a problem except for potential slumping along the levees.

According to the U.S. Soil Conservation Service, the erosion hazard exhibited by surface soils is considered low. The essentially level topography of the majority of the Study Area suggests that erosion will not present a significant problem. However, the Jobs Emphasis alternative and the PC Environmental Review alternative designate land to the west of Interstate 5 in the foothills of the Diablo Range on slopes that vary between 5% and 50%. These areas could be susceptible to slope instability and erosion.

Land Subsidence

Subsidence of the land surface can result from extraction of groundwater, gas, oil, and geothermal energy. Hydrocompaction, peat oxidation, and fault rupture are also potential causes of subsidence. Groundwater withdrawal subsidence is the most extensive type in California. This type of subsidence has been observed only in valley areas underlain by alluvium.

Subsidence can cause a change in gradients affecting the carrying capacities of canals, drains, and sewers. Compaction of sediments at depth has caused extensive damage to water wells in areas where subsidence has been substantial. The magnitude of subsidence depends primarily on the following five factors:

- The magnitude of water level decline.
- The thickness of the alluvium tapped by wells.
- The individual and combined thicknesses and compressibility of the silt and clay layers within vertical sections tapped by wells.
- The lengths of time during which water level declines are maintained.
- The number of occurrences of heavy withdrawals of water in any single area.

Patterson is within the San Joaquin groundwater basin. This basin has been identified by the California Department of Water Resources as experiencing overdraft. The Patterson area experienced some overdraft during the 1976-77 drought. Wells are monitored by the U.S. Soil Conservation Service to identify potential overdraft problems.

Regulatory Setting

State

California Geological Survey

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (prior to January 1, 1994, known as the Alquist-Priolo Special Studies Zones Act – CCR, Title 14, Section 3600) sets forth the policies and criteria of the State of California in regard to building within active fault zones. The Alquist-Priolo Earthquake Fault Zoning Act outlines cities' and counties' responsibilities in prohibiting 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 delineated on maps officially issued by the State Geologist.

California Building Code

The California Code of Regulations, Title 24, also known as the California Building Standard Code or the California Building Code (CBC), establishes guidance for foundation design, shear wall strength, and other structurally related concerns. The CBC modified previous regulations for specific conditions found in California and included a large number of more detailed and/or more restrictive regulations. For example, the CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil related impacts. The CBC requires structures to be built to withstand ground shaking in areas of high earthquake hazards and the placement of strong motion instruments in larger buildings to monitor and record the response of the structure and the site of seismic activity. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC also contains drainage requirements in order to control surface drainage and to reduce seasonal fluctuations in soil moisture content.

Seismic Hazards and Mapping Act

The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) directs the Department of Conservation, California Geological Survey to identify and map areas prone to earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the act is to reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigating these seismic hazards. The act was passed by the State Legislature following the 1989 Loma Prieta earthquake and pertains to seismic hazards other than the fault surface rupture hazard regulated by the Alquist-Priolo Earthquake Fault Zoning Act of 1972.

Local Regulations

City of Patterson Municipal Code

The Municipal Code provides building regulations that apply to new construction within the City. The City applies the California Building Code (described above) to all new construction. In addition, the City's Subdivision Regulations (Title 16) require grading and erosion control measures for all subdivision improvement plans, as well as a soils report to help inform the design of foundations, roads and retaining walls.

Standards of Significance

Appendix G of the CEQA Guidelines states that, a geologic, soils, or mineral resources impact is considered significant if project implementation would result in any of the following:

1. 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 issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
 - b. Strong seismic ground shaking.
 - c. Result in substantial soil erosion or the loss of topsoil.
2. The loss of a unique geologic feature.
3. The placement of structures on strata or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
4. The placement of structures on expansive soil creating substantial risks to life or property.

Project Impacts and Mitigation Measures

Seismic Events

Impact 5.9-1 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan, and the resulting increase in population, employment, and development activity within the Study Area, would expose people, structures, and development to ground shaking and seismic hazards as a consequence of earthquakes that could result in the risk of loss, injury, or death. This impact is considered potentially significant.

The hazards related to ground shaking include the risk of loss, injury, or death. Buildings that were constructed within the Study Area prior to 1930, including unreinforced masonry (URM) buildings that have not been seismically retrofitted, are most likely to have structural failure or collapse occur. Buildings that have been seismically retrofitted would have a decreased chance of failure. However, even structurally enhanced buildings and newer buildings could still experience significant damage and present a hazard to occupants.

Ground shaking can result in significant structural damage or structural failure in the absence of appropriate seismic design. However, as previously discussed, the Study Area is not located within an Alquist-Priolo earthquake hazard zone and there are no known active faults occurring within the Study Area. The Study Area, as with virtually all places in the State of California, is, however, subject to minor ground shaking and potential secondary hazards as a result of earthquakes. According to the Stanislaus County Multi-Jurisdiction Hazard Mitigation Plan (Volume One, page 21) the Study Area can expect to be subjected to a seismic event producing groundshaking 50 times the acceleration of gravity (“50 G”) per ground acre. According to this study, Patterson lies within the portion of Stanislaus County where the greatest damage would occur.

However, the combination of Study Area characteristics and compliance with the UBC and CBC would be sufficient to prevent significant damage from ground shaking during seismic events resulting from movement on any of the faults or fault systems described within this EIR. In addition, the Draft Policy Document sets forth additional policies and implementation measures to address potential impacts from seismic events.

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Policies

LU-1.4 Planned development requirement — Mixed Use Hillside Development. Development of areas designated Mixed Use Hillside Development shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- a. **Land use plan.** Each planned development application will include a land use diagram that clearly identifies the uses allowed in each portion of the site based on the land use

designations described in Part I – Land Use Diagrams and Standards. The land use plan will incorporate the range of uses described in Table LU-2, generally consistent with the percentages for each land use category.

Table LU-2: Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

- I. **Geotechnical investigation.** Each planned development application within the area designated Mixed-Use Hillside Development will be accompanied by a geotechnical investigation to address the following:
- i. Areas subject to slope instability or other geologic hazard and areas with slopes in excess of 20 percent will be identified and mapped; the resulting acreage will be deducted from the gross acreage for purposes of determining the allowable developable area.
 - ii. The geotechnical investigation shall recommend appropriate grading, drainage, building foundations, and road improvement requirements suitable to the soils, slope and other characteristics of the site.

HS-1.1 Geotechnical reports. The City shall require the preparation of geotechnical reports and impose appropriate mitigation measures to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction.

HS-1.2 Seismic resistant utilities. Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces in accordance with state requirements.

Implementation Measures

HS-A The City shall adopt the most current editions of the California Building Code, Uniform Fire, Uniform Plumbing, Mechanical, and National Electric Code.

Additional Mitigation Measures

None required.

With the implementation of the policy measures coupled with compliance with existing laws and regulations, this impact is considered **less than significant**.

Landslides and Slope Stability

Impact 5.9-2 Adoption and implementation of the Jobs Emphasis or PC Environmental Review alternatives will result in urban development in the foothills of the Diablo Range which is known to contain areas of geologic instability. This impact is considered **potentially significant**.

The Jobs Emphasis and PC Environmental Review Plans designate the area west of Interstate 5 between Sperry Avenue and Zacharias Road as Mixed-Use Hillside Development. According to the Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan (Volume One, page 29), virtually the entire area located west of Interstate 5 is composed of geologic formations that, due to structure, slope, runoff, lack of vegetation, earthquake and human activity, are considered extremely susceptible to failure and sliding. In the winter of 1982-83, saturation of the soil in this area resulted in a considerable amount of damage to Del Puerto Canyon Road. There is a history of a number of slides throughout the Diablo Range in Stanislaus County. It is evident that the steep slopes and undesirable geology of the area on the west side of the County, even without considering the very real possibility of an earthquake, present substantial risks in certain conditions.

On a California Geological Survey scale used to rate landslide potential, this area is rated at five, the next to highest rating on a scale of six. The remainder of the area is rated at six. The prime reason is the generally unstable formation comprising the underlying geologic structure of the Diablo Range.

Draft General Plan Policy Response

Policies

LU-1.4 Planned development requirement — Mixed Use Hillside Development. Development of areas designated Mixed Use Hillside Development shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- b. **Land use plan.** Each planned development application shall include a land use diagram that clearly identifies the uses allowed in each portion of the site based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan shall incorporate the range of uses described in Table LU-2, generally consistent with the percentages for each land use category.

Table LU-2: Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

I. Geotechnical investigation. Each planned development application within the area designated Mixed-Use Hillside Development shall be accompanied by a geotechnical investigation to address the following:

- iii. Areas subject to slope instability or other geologic hazard and areas with slopes in excess of 20 percent shall be identified and mapped; the resulting acreage shall be deducted from the gross acreage for purposes of determining the allowable developable area.
- iv. The geotechnical investigation shall recommend appropriate grading, drainage, building foundations, and road improvement requirements suitable to the soils, slope and other characteristics of the site.

HS-1.1 Geotechnical reports. The City shall require the preparation of geotechnical reports and impose appropriate mitigation measures to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction.

HS-1.2 Seismic resistant utilities. Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces in accordance with state requirements.

Implementation Measures

HS-A The City shall adopt and apply the most current editions of the Uniform Building, Uniform Fire, Uniform Plumbing, Mechanical, and National Electric Code

Although the portion of the Study Area west of I-5 poses a significant risk to new construction policy LU-1.4, items b. acknowledges these constraints by establishing target development acreages for those areas where the slope is less than 20 percent. In addition item i. requires that development in areas designated Mixed-Use Hillside Development be preceded by a geotechnical investigation to assess the risk to structures from seismicity, slopes, soil expansiveness and other geologic hazards that may present. Compliance with these requirements, along with the requirements of the Uniform Building Code will reduce potential hazards to development to a **less than significant** level.

Additional Mitigation Measures

None required.

Soil Erosion

Impact 5.9-3 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan will accommodate subsequent development activities that may include construction and site preparation activities such as grading and excavation. These activities can increase the potential for soil, wind, and water erosion, due to minor or major grading over large areas of land. This is considered a potentially significant impact.

The continued development of the City in accordance with any of the Equal-Weight General Plan alternatives would include new roadways, improvements to existing roadways, new bridges, substantial infrastructure (water, storm drainage, and sanitary sewer facilities), and additional commercial, residential, and industrial development. Grading and site preparation activities associated with development would remove topsoil, disturbing and potentially exposing the underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities generally involve the use of water, which may further erode the topsoil as the water moves across the ground. For a discussion of surface water quality, see Chapter 5.13, Hydrology and Water Quality.

Construction activities involving clearing, grading, or excavation that causes soil disturbance on one or more acres (or any project involving less than one acre that is part of a larger development plan and includes clearing, grading, or excavation) would be subject to coverage under the State's National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit. Project applicants are required to prepare and comply with a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to avoid soil erosion and associated pollution of waterways and are also required to report any water pollution and remediate the pollution occurrence.

The Storm Water Phase II Final Rule applies to operators of regulated small municipal separate storm sewer systems (MS4s). Under the NPDES storm water program, operators of large, medium, and regulated small MS4s require authorization to discharge pollutants under an NPDES permit. Medium and large operators are required to submit comprehensive permit applications and are issued individual permits. Patterson is a regulated small MS4 operator and submitted an application to be covered under

the General Permit in January 2004. A Storm Water Management Program (SWMP)⁵ to comply with the Small MS4 General Permit was prepared and submitted to the State Water Resources Control Board by the co-permittees (the participating city agencies)⁶. The SWMP describes the program to be implemented by the City agencies. The City of Patterson is legally obligated to implement the requirements of the SWMP and to comply with the requirements of the small MS4 General Permit,

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- NR-1.2 Stormwater quality.** The City shall implement measures to minimize the discharge of pollutants and sediment into Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.3 Inter-agency cooperation.** The City shall continue to work with local, state, and federal agencies and other watershed organizations to improve water quality.
- NR-1.4 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.5 New development.** The City shall require new development to protect the quality of water bodies and drainage systems through adaptive site design, stormwater management, and the implementation of best management practices (BMPs).
- NR-2.11 Soil conservation.** The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.

Application of the California Building Code along with the requirements outlined by the above policies will reduce potential impacts of relating to erosion and sedimentation to a **less than significant level**.

Additional Mitigation Measures

None required.

Expansive or Unstable Soils

Impact 5.9.4 Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental. Review alternatives could place development in areas with unstable soils or expose buildings, pavements, and utilities to significant damage as a result of underlying expansive or unstable soils. This impact is considered potentially significant.

⁵ State Water Resources Control Board, Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (General Permit), NPDES No. CAS000004, 2003. Available at: http://www.swrcb.ca.gov/stormwtr/phase_ii_municipal.html

⁶ Tulloch Engineering, Storm Water Management Program for the Cities of Ceres, Oakdale, Patterson, Riverbank, Report of Waste Discharge, March 10, 2003.

The continued development of the City in accordance with any of the Equal-Weight alternatives would result in construction activities overlying expansive or unstable soils. Newly constructed buildings, pavements, and utilities could be damaged by differential settlement due to soil expansion and contraction. When structures are located on expansive soils, foundations have the tendency to rise during the wet season and shrink during the dry season. Movements can vary under the structures, which in turn create new stresses on various sections of the foundation and connected utilities. These variations in ground settlement can lead to structural failure and damage to infrastructure.

Development on soils west of Interstate 5 could pose additional constraints relating to shallow bedrock, steep and unstable slopes, expansive soils and the potential for landslides. The limitations required by policy LU-1.4 (see below) which limit development to areas previously surveyed by a geotechnical investigations will help ensure avoidance of these constraints.

As discussed previously, the City of Patterson adopted the California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code or California Building Code (CBC). The CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil related impacts. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC also contains drainage related requirements in order to control surface drainage and reduce seasonal fluctuations in soil moisture content.

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LU-1.4 Planned development requirement — Mixed Use Hillside Development. Development of areas designated Mixed Use Hillside Development shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- a. **Land use plan.** Each planned development application shall include a land use diagram that clearly identifies the uses allowed in each portion of the site based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan shall incorporate the range of uses described in Table LU-2, generally consistent with the percentages for each land use category.

Table LU-2: Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
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Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

I. **Geotechnical investigation.** Each planned development application within the area designated Mixed-Use Hillside Development shall be accompanied by a geotechnical investigation to address the following:

- v. Areas subject to slope instability or other geologic hazard and areas with slopes in excess of 20 percent shall be identified and mapped; the resulting acreage shall be deducted from the gross acreage for purposes of determining the allowable developable area.
- vi. The geotechnical investigation shall recommend appropriate grading, drainage, building foundations, and road improvement requirements suitable to the soils, slope and other characteristics of the site.

HS-1.1 Geotechnical reports. The City shall require the preparation of geotechnical reports and impose appropriate mitigation measures to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction.

HS-1.2 Seismic resistant utilities. Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces in accordance with state requirements.

Implementation Measures

HS-A The City shall adopt the most current editions of the California Building Code, California Fire, Uniform Plumbing, Mechanical, and National Electric Code.

Application of the California Building Code along with the geotechnical investigations required by policies LU-1.4 and HS-1.1 and measure HS-1.1 will reduce potential impacts relating to expansive soils to a less than significant level.

Additional Mitigation Measures

None required.

Bridge Construction

Impact 5.9-5 New roadway and/or pedestrian bridges may be required over Diablo Creek, Salado Creek, the Delta Mendota Canal, California Aqueduct, and/or the San Joaquin River. The construction of new bridges may result in significant grading, excavation, fill, and boring activities which in turn could result in unstable cut and fill slopes, the placement of structures on expansive soils, and the potential for increased erosion. These impacts are considered potentially significant.

Implementation of any of the Equal-Weight alternatives may involve the construction of new roadway bridges to complete the circulation system shown on the Preliminary Circulation Diagram. At present, the precise number or location of such bridges is not known. However, it is expected that bridges will likely be constructed in the general locations shown on Figure 5.9-3.

Bridge construction involves activities such as bridge demolition; structural excavation and backfill; erecting falsework; forming and pouring concrete for footings columns and superstructures; the placement of sheet piles; boring, drilling, grinding, mortar mixing, blasting, and bridge cleaning. As discussed above under Impact 5.9-3 and 5.9-4, grading and site preparation activities associated with development activities would remove topsoil, disturbing and potentially exposing the underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities generally involve the use of water, which may further erode the topsoil as the water moves across the ground. Impacts associated with water quality are discussed in Section 5.13, Hydrology and Water Quality.

As discussed under Impact 5.9-4, newly constructed bridges could be damaged by differential settlement due to soil expansion and contraction.

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HS-1.1 Geotechnical reports. The City shall require the preparation of geotechnical reports and impose appropriate mitigation measures to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction.

Implementation Measures

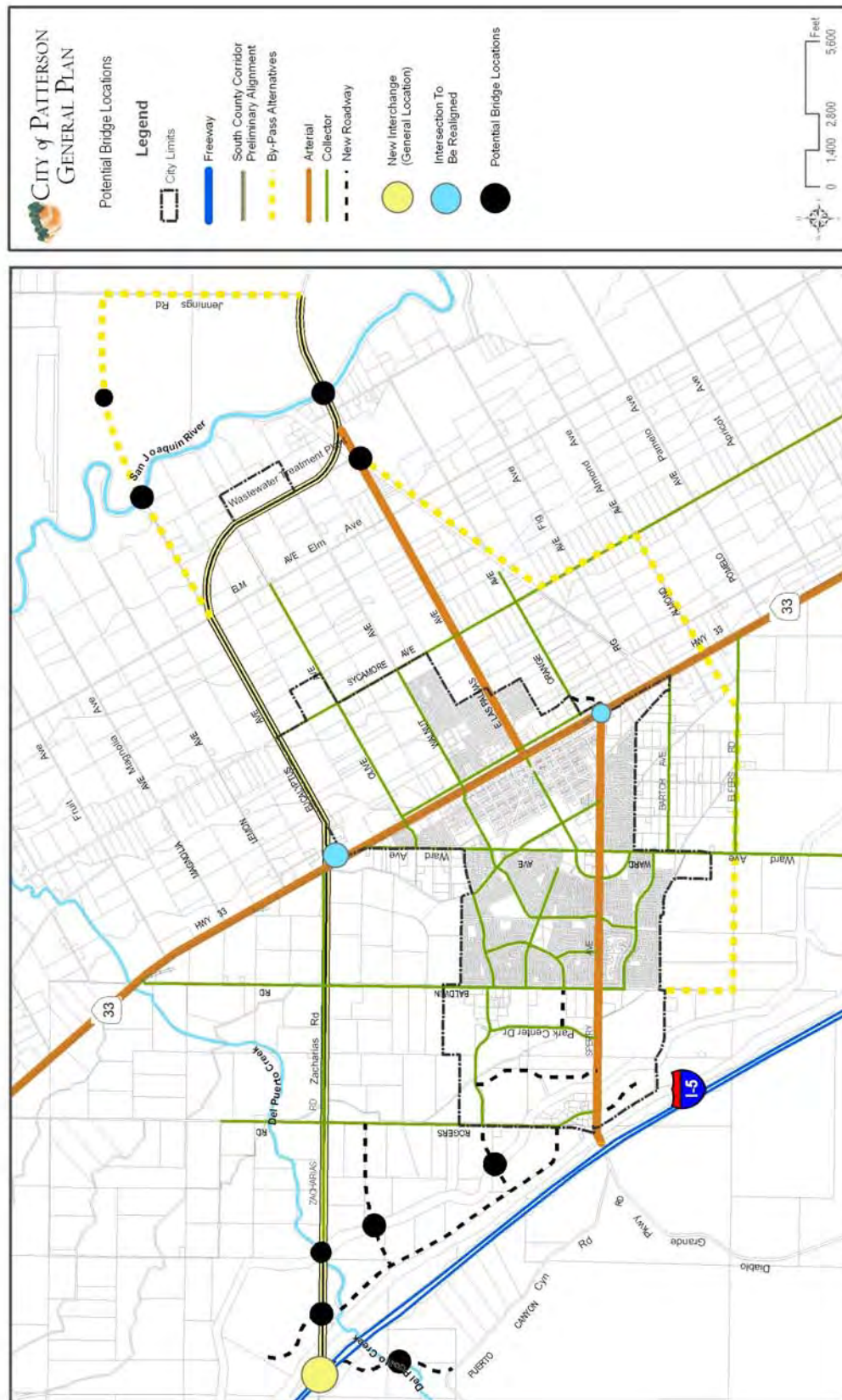
HS-A The City shall adopt the most current editions of the California Building Code, California Fire Code, Uniform Plumbing, Mechanical, and National Electric Code.

Application of the California Building Code along with the geotechnical investigations required by policy HS-1.1 and measure HS-1.1 will reduce potential impacts of bridge construction to geological resources to a **less than significant level**.

Additional Mitigation Measures

None required.

Figure 5.9-3: Potential Bridge Locations



Cumulative Impacts and Mitigation Measures

Cumulative Seismic Hazards, Expansive Soils, and Soil Erosion Impacts

Impact 5.9-6 Implementation of any of the Equal-Weight General Plan alternatives, in combination with existing, planned, proposed, and reasonably foreseeable development, would not contribute to cumulative seismic hazards, expansive soils, and soil erosion impacts given the area-specific nature of the impact. This is considered a less than cumulatively considerable impact.

Development of the Study Area under any of the Equal-Weight General Plan alternatives together with continued development within Stanislaus County, would result in cumulative soil erosion and other geologic impacts. Compliance with the City's NPDES permit would reduce the City's contribution to cumulative soil erosion impacts. Development projects are analyzed on an individual basis and must comply with established requirements of the City, the California Environmental Quality Act (CEQA) and the UBC as they pertain to protection against known geologic hazards and potential geologic and expansive soil related impacts. There are no known active faults in the Study Area, there is a low incidence of historical geologic activity in the vicinity, and there is no contribution with other regional geologic impacts. Therefore, any of the Equal-Weight alternatives' contribution to cumulative geology-related impacts is considered **less than cumulatively considerable**.

For a discussion of impact to water quality, please refer to Section 5.13, Hydrology and Water Quality.

Additional Mitigation Measures

None required.

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5.10 BIOLOGICAL RESOURCES

Introduction

This section addresses impacts to biological resources resulting from implementation of the Equal-Weight Project Alternatives. Biological resources present in the Study area include row crops and orchards, riparian resources along creeks, aquatic resources, and developed areas. Potential impacts to these resources were assessed by HT Harvey and Associates in April 2009 and previous studies. The biological resources study prepared for the General Plan expansion areas is provided in its entirety as Appendix 5.10 Biological Resources.

Setting

Regional Setting

The Study Area is located in western Stanislaus County. The climate of the San Joaquin Valley in Stanislaus County is characterized by hot, dry summers and cool, moist winters with frequent heavy fog. Weather patterns in the valley result from the presence of the Coast Range to the west and the Sierra Nevada Mountains to the east. Overall, the Coast Range produces a rain shadow effect, with the majority of moisture falling on the coastal side of the mountains. During winter months, however, the offshore high pressure areas move further south on the coast, allowing the San Joaquin Valley to receive the majority (90%) of its annual precipitation. The average annual precipitation in Patterson ranges from 10 inches to 12 inches (USDA 2009). Temperatures range from an average high of 96°F and low of 63°F in the summer, to an average high of 54°F and low of 37°F in the winter (National Weather Service 2009).

Local Setting

According to the Natural Resource Conservation Service, the soils underlying the Study Area are well drained to moderately well drained, except for the hillsides of the Diablo Range foothills west of Interstate 5. A summary of the soil types present on the Study Area is provided in Table 5.10-1 below.

Table 5.10-1: Soil Types In The Study Area

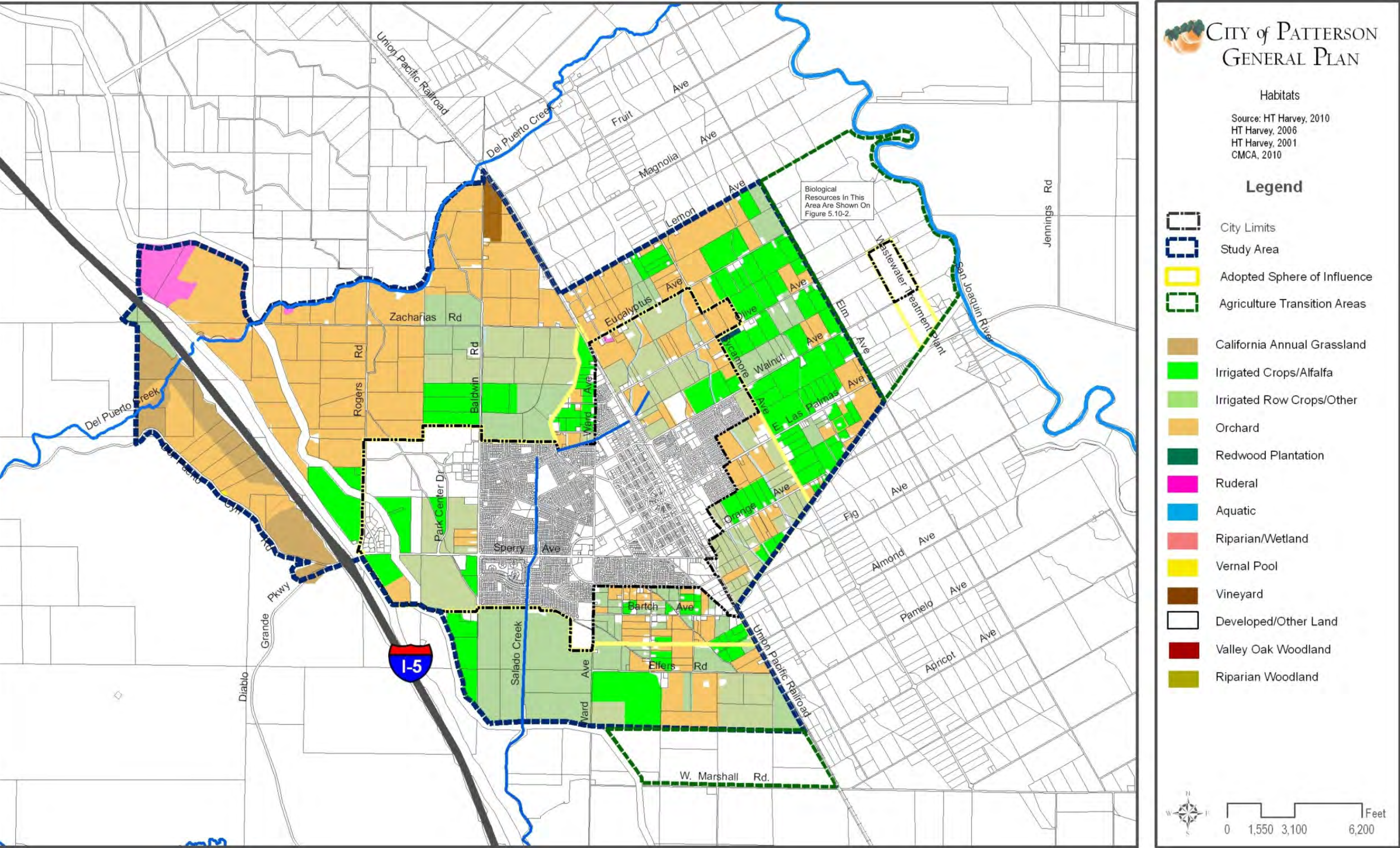
Soil Type	Acres	Percent of Study Area
Capay Clay	1,970	15.43
Capay Clay wet	1,359	10.64
Capay Clay, loamy substratum	271	2.12
Capay Clay, 0- 2% slope, rarely flooded	805	6.30
El Soylyo silty clay loam	293	2.29
Vernalis-Zacharias complex, 0-2% slopes	304	2.38
Vernalis loam, 0 - 2% slope	204	1.60
Vernalis clay loam, wet	12	0.09
Vernalis clay loam, 0 - 2% slope	794	6.22
Vernalis Zacharias complex, 0-2% rarely flooded	387	3.03
Vernalis loam, rarely flooded	1,173	9.19
Stomar clay loam	1,095	8.58
Zacharias clay loam, 0-2% slope	470	3.68
Zacharias gravelly clay loam	327	2.56
Zacharias gravelly clay loam 2-5% slope	194	1.52
Zacharias clay loam, 2 - 5% slope	278	2.18
Zacharias clay loam, 0 - 2% slopes rarely flooded	404	3.16
Zacharias gravelly clay loam, rarely flooded, 0-2%	499	3.91
Cortina gravelly sandy loam	283	2.22
Calla-Carbona complex	419	3.28
Elsalado loam	240	1.88
Elsalado loam, rarely flooded	389	3.05
Elsalado loam, 0-2% slopes	292	2.29
Wisflat-Arburura-San Timoteo complex, 20-50% slopes	306	2.40
Total:	12,768	100.00

Plant Communities and Habitats within the Study Area

Eleven habitats occur on the Study Area: California annual grassland, irrigated crops/ alfalfa, irrigated crops/other, orchard, vineyard, redwood plantation, ruderal, riparian, vernal pool, aquatic, and developed (Table 5.10-2, Figure 5.10-3). These biotic habitats and associated vegetation and wildlife are described in further detail below. Plant communities were described in terms of dominant tree, shrub, and herbaceous vegetation composition and, when possible, classified according to the nomenclature of Holland (1986) and Sawyer and Keeler-Wolf (1995). Figure 5.10-1 shows the distribution of these habitats and land use types.

Table 5.10-2 -- Summary of Biotic Habitats and Land Use Types Present In the Study Area		
Habitat type	Acreage	Percent of total
Irrigated Row Crop --Alfalfa	1,789.8	14.0%
Aquatic	57.9	0.5%
California Annual Grassland	415.5	3.3%
Orchard	3,562	27.8%
Redwood Plantation	7.8	0.1%
Riparian	16.1	0.1%
Irrigated Row Crop --Other	2,743.6	21.5%
Ruderal	154.9	1.2%
Vernal Pool	0.8	0.0%
Vineyard	49.2	0.4%
Developed/Other:	3,970.5	31.0%
Total:	12,768	100%
Sources: HT Harvey, 2010, HT Harvey, 2006, HT Harvey, 2002 CMCA, 2010		

Figure 5.10-1: Habitats within the General Plan Study Area



California Annual Grassland

California annual grassland occurs in the area west of Interstate 5 and comprises approximately 415.46 acres (3.3%) of the Study Area. This habitat covers gently rolling to steeply sloped (75% slope) terrain dissected by ephemeral drainages and Del Puerto Creek in the north. The terrain north of Del Puerto Creek and along the southwest near I-5 is very steep with some exposed rocky cliffs near Del Puerto Creek. This habitat is primarily dominated by non-native annual grasses, but also supports a variety of native herbs. The dominant grass species in these areas are ripgut brome (*Bromus diandrus*) and slender oat (*Avena barbata*). Native herbs present within the California annual grassland habitats include Great Valley gumweed (*Grindelia camporum* var. *camporum*), Heermann's tarweed (*Holocarpha heermannii*), and California poppy (*Eschscholzia californica*).

The non-native grasslands found on the site are productive wildlife habitat. Grassland species such as mourning dove (*Zenaida macroura*), savannah sparrow (*Passerculus sandwichensis*), California ground squirrel (*Spermophilus beecheyi*), and deer mouse (*Peromyscus maniculatus*) forage on the seed crop and attract predators such as the gopher snakes (*Pituophis melanoleucus*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and coyote (*Canis latrans*). Winter migrants to this site include Say's phoebe (*Sayornis saya*) and American pipit (*Anthus rubescens*), while the spring and summer months bring western kingbirds (*Tyrannus verticalis*).

Irrigated Crops/Alfalfa

Irrigated alfalfa (*Medicago sativa*) comprises 1,789.8 acres (14.0%) of the Study Area. Black mustard (*Brassica nigra*), Johnsongrass (*Sorghum halepense*), Italian ryegrass (*Lolium multiflorum*), and other ruderal, weedy species are also found sporadically throughout the fields. These crops are primarily flood-irrigated using water that is diverted from the laterals present on the site to irrigation trenches located on the periphery of the fields.

Because it is less frequently disturbed than other crops, alfalfa can provide attractive habitat for some wildlife. During irrigation, flocks of birds including great blue herons (*Ardea herodias*), snowy egrets (*Egretta thula*), white-faced ibis (*Plegadis chihi*), long-billed curlews (*Numenius americanus*), and American crows (*Corvus brachyrhynchos*) are frequently observed feeding on invertebrate life and small mammals forced to the surface by sheets of water. Alfalfa frequently supports large populations of gophers (*Thomomys* sp.) and voles (*Microtus* sp.), which are prey for raptors such as red-tailed hawks, Swainson's hawks (*Buteo swainsoni*), and northern harriers (*Circus cyaneus*).

Irrigated Crops/Other

Irrigated crops/other comprise 2,743.6 acres (21.5%) of the Study Area. This habitat type includes plowed or recently disked fields, hay, pasture, fallow fields (previously farmed but not currently planted), and row crops including broccoli and corn. Black mustard, Johnsongrass, Italian ryegrass, and other ruderal, weedy species are also found sporadically throughout the fields. These crops are primarily flood-irrigated using water that is diverted from the laterals present on the site to irrigation trenches located on the periphery of the fields.

Species that occur in cultivated habitats are generally widespread species accustomed to disturbances such as American kestrels, American crows, killdeer (*Charadrius vociferous*), western meadowlarks (*Sturnella neglecta*), Brewer's blackbirds (*Euphagus cyanocephalus*), and house finches (*Carpodacus mexicanus*).

Fallow fields are likely to have larger populations of small mammals, such as gophers, than actively farmed lands and may be more likely to provide nesting habitat for birds such as killdeer, mourning doves, and red-winged blackbirds (*Agelaius phoeniceus*). Raptors also prey upon small mammals within fallow fields.

Orchard

Orchards comprise approximately 3,562 acres (27.8%) of the Study Area. Apricot (*Prunus armeniaca*), English walnut (*Juglans regia*), and almond (*Prunus dulcis*) cultivars were the primary orchard crops. The orchards throughout the Study Area are generally maintained with few weedy species, and the herbaceous layer consisted primarily of barren soil at the time of the survey.

Orchards provide limited habitats for wildlife, as frequent disturbances associated with crop production such as pruning, spraying, harvesting, watering, and other ground disturbances limit the potential for most wildlife species to persist in these habitats. However, some animals such as the side-blotched lizard (*Uta stansburiana*) persist under these conditions. Birds such as American crows and yellow-billed magpies (*Pica nuttalli*) utilize nut crops and can be quite abundant. Burrowing animals such as California ground squirrels and gophers are normally actively discouraged because of damage these animals can cause to irrigation systems.

Redwood Plantation

A single redwood (*Sequoia sempervirens*) plantation occurring in the northeast section of the Study Area comprised approximately 7.82 acres (0.1%) of the Study Area. Overall plant diversity was low due to the close spacing of the trees.

This small isolated redwood plantation is of limited value to wildlife due to low species and structural diversity. As with many rural woodlots, it may provide roosting and nesting habitat for common bird species such as American crows, mourning doves, and house finches.

Vineyard

Vineyards comprise approximately 49.16 acres (0.4%) of the Study Area. The vineyards throughout the Study Area are generally maintained with few weedy species, and the herbaceous layer consisted primarily of barren soil at the time of the survey.

Vineyards provide limited habitats for wildlife, as the frequent disturbances associated with crop production limit the potential for most wildlife species to persist in vineyards. Common animals such as the side-blotched lizard can persist under these conditions. Some birds, such as American crows, western scrub-jays (*Aphelocoma californica*), and house finches are attracted to fruit crops and can be quite abundant.

Ruderal

There are three areas of ruderal habitat. One is located along the northern boundary of the Study Area on a large pile of soil adjacent to Del Puerto Creek and comprises approximately 3.33 acres. A second, larger area is located in the extreme northwest corner of the Study Area between the Delta Mendota Canal and the California Aqueduct and comprises about 149.5 acres and a third area located on the south side of Eucalyptus Avenue east of First Street which comprises about 2.1 acres. Together, ruderal habitats total about 154.9 acres, or about 1.2% of the Study Area. Ruderal communities are assemblages of plants that thrive in disturbed areas, and weedy, non-native annual forbs and grasses are typically the first species to

colonize these sites following disturbance. Ruderal species observed on the project site included ripgut brome, filaree (*Erodium sp.*), black mustard, shepherd's purse (*Capsella bursa-pastoris*), and yellow star-thistle (*Centaurea solstitialis*).

Ruderal habitats within the Study Area are of limited value to wildlife due to the lack of vegetative cover. Common species such as mourning doves and killdeer occasionally forage in such areas.

Aquatic

Aquatic habitat within irrigation canals (56.56 acres) and ponds (1.34 acres) comprises approximately 57.9 acres of the Study Area. Canals providing aquatic habitat occur only seasonally within the following 7 laterals: West Stanislaus Irrigation District (WSID) Lateral B, WSID Lateral C, WSID Lateral M, WSID Lateral No. 4, WSID Lateral No. 5, WSID Lateral No. 6, and First Lift.

WSID Lateral B, WSID Lateral C, WSID Lateral M, WSID Lateral No. 4, extend from the Patterson Irrigation District (PID) Main in the south, which pulls water from the San Joaquin River, north to Del Puerto Creek. WSID Lateral No. 5 extends from Salado Creek north across the Study Area to Del Puerto Creek. WSID Lateral No. 5 and WSID Lateral No. 6 extend north-south across the Study Area, while the First Lift is located in the south section of the Study Area. At the time of the survey, all canals contained water.

The canals on the Study Area are primarily cement lined, although some sections are excavated earthen channels. The canals were well maintained and primarily devoid of aquatic vegetation at the time of the survey. Some hydrophytes ("water-loving" plants) could be present in areas at the terminus of irrigation trenches where ponding may occur as a result of flood-irrigating practices within the Study Area.

In addition, 2 irrigation ponds totaling 1.34 acres are located within the Study Area. One is located south of Elfers Road in the southeast section of the Study Area and is bordered by riparian habitat between the pond and road. The second is located east of Baldwin Road in the northern portion of the Study Area. The ponds contained water but supported no vegetation at the time of the survey.

Because the laterals and the surrounding areas are devoid of vegetation, these areas are of little value for wildlife species. When in use, the laterals may provide a source of drinking water for birds and mammals. The ponds likely provide habitat for amphibians such as bullfrogs (*Lithobates catesbeianus*) and western toads (*Anaxyrus boreas*). The wet edges of the ponds may provide foraging habitat by common garter snake (*Thamnophis sirtalis*). Ponds of this sort often attract insectivorous birds such as black phoebe (*Sayornis nigricans*) and barn swallow (*Hirundo rustica*), as well as ducks such as mallards (*Anas platyrhynchos*).

Riparian

This category includes riparian corridors, streams, and wetland vegetation comprising approximately 16.01 acres (0.2%) of the Study Area and occurs along Del Puerto Creek and Salado Creek, on Elfers Road adjacent to an irrigation pond, and along one unnamed drainages west of I-5.

Del Puerto Creek flows east through the area west of Interstate 5, and continues along the northern boundary of the Northern Expansion Area. Within the Foothills Expansion Area the creek is between 5 and 20 ft wide and contained running water at the time of the survey. A dirt road crosses the creek near the eastern edge of the Foothills Expansion Area where a dry crossing once existed, as evidenced by a submerged culvert within the creekbed. Upstream from this crossing is a cement weir. Riparian

vegetation was dominated by rushes (*Juncus* spp.) and smooth barley (*Hordeum murinum* ssp. *glaucum*), with scattered patches of narrowleaf cattail (*Typha angustifolia*). Scattered patches of willow (*Salix* sp.) and individual Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) also occur along the stream margins. One blue elderberry (*Sambucus mexicana*) was observed adjacent to the creek. In addition, a single vernal swale occurs on the south side of Del Puerto Creek.

Salado Creek enters the Study Area from the south and runs north through a channelized bed, which allows for little riparian vegetation establishment. Riparian habitat also occurs within an unnamed ephemeral drainage in the Foothills Expansion Area west of I-5, as evidenced by willows and rush within the lower portion of the drainage near I-5. At the time of the survey, the drainage did not contain water.

A small, narrow section of riparian vegetation consisting of willows and black walnut (*Juglans nigra*) occurred on a berm between Elfers Road and a pond to the south. The herbaceous cover is dominated by the non-native species English ivy (*Hedera helix*) and dwarf nettle (*Urtica urens*).

The riparian and wetland habitat on the Study Area is sparsely vegetated west of I-5 and is channelized and degraded elsewhere. The quality of these riparian habitats is not such that they are likely to attract any sensitive riparian obligate species. The water in the creeks and channels may provide breeding habitat for amphibians such as western toads, and adult and larval bullfrogs were observed in Del Puerto Creek. Areas where willows, cottonwoods, and other trees or shrubs are present may provide habitat for common bird species such as black phoebe, Bewick's wren (*Thryomanes bewickii*), song sparrow (*Melospiza melodia*), Bullock's oriole (*Icterus bullockii*) and red-winged blackbird.

Vernal Pool

One vernal pool comprising approximately 0.81 acres (<0.1%) of the Study Area occurs within the Study Area west of I-5. The vernal pool is on clay soil, retaining water throughout the winter months. At the time of the survey, the vernal pool did not contain water. Disturbances due to cattle were observed including heavy browsing along the margins of the pool and significant hoof punching throughout the pool. One vernal pool species, stalked popcorn flower (*Plagiobothrys stipitatus* var. *micranthus*), and several ruderal species including Eastwood's fiddleneck (*Amsinckia eastwoodiae*), dove weed (*Eremocarpus setigerus*), and hairy purslane speedwell (*Veronica peregrine* ssp. *xalapensis*) occurred within the vernal pool.

This single pond may provide breeding habitat for common amphibians such as western toads and Pacific chorus frogs (*Pseudacris regilla*) and may provide foraging habitat for common garter snakes. When flooded, the pond may draw waterbirds such as mallard and killdeer.

Developed

Approximately 3,970.5 acres (31%) of the Study Area is comprised of developed areas, including roads, houses and associated lawns and hardscape, as well as barns, related structures, and equipment. Many of the ruderal species previously listed occur around these developments. Additionally, a variety of ornamental trees and shrubs are present within developed areas.

Homesteads and developed areas typically provide habitat for common species accustomed to human disturbance. Common backyard birds such as western scrub-jays, American robin (*Turdus migratorius*), northern mockingbirds (*Mimus polyglottos*), house finches, and house sparrows (*Passer domesticus*) are likely to be present at these sites. Where there are wood or brush piles, species such as western fence lizards (*Sceloporus occidentalis*) and desert cottontails (*Sylvilagus audubonii*) may be present.

Biological Resources In the Vicinity of the Wastewater Treatment Plant

In January, 2003, the City of Patterson certified a final environmental impact report for the West Patterson Projects (Turnstone Consulting, 2003 SCH#s 2001022031 and 2001032037). The Final EIR is incorporated by reference and available for review at the City Planning Department, 1 Plaza, Patterson, CA. The West Patterson Projects consisted of three parts:

- The Patterson Gardens project, consisting of about 305 acres located at the southwest corner of Ward Avenue and Sperry Avenue. The project would accommodate about 3,375 dwelling units and about 300,000 square feet of non-residential development. And,
- The West Patterson Business Park Master Development Plan area, consisting of about 820 acre located west of Baldwin Road and east of Interstate 5.
- Expansion of the wastewater treatment plant to construct percolation/evaporation ponds totaling about 125 acres.

Properties surrounding the wastewater treatment were surveyed for biological resources in 2001. Those surveys identified the following habitats in the vicinity of the wastewater treatment plant.

Agricultural/Row Crop

At the time of the field survey (2001) the agricultural lands near the treatment plant were primarily planted with row crops, including alfalfa, corn, and winter wheat. As previously identified, cultivated areas have less value to wildlife compared to grassland areas that have not been cultivated, but they do provide nesting and foraging habitat for a variety of wildlife species. Low-growing row crops that support prey populations are important as foraging habitat for many raptors.

Agricultural/Fallow

A portion of the study area contains agricultural fields that have been left uncultivated for at least the previous growing season. Wildlife associated with these fallow habitats has been previously described.

Agricultural/Orchard

The study area contains several orchards, primarily planted in apricots. As previously identified, these habitats are usually intensively maintained and generally of low value to most native wildlife species. Wildlife associated with orchard habitats has been described in the introduction to the biotic habitats section.

Riparian

An area of riparian floodplain separates the existing wastewater treatment plant and the San Joaquin River. The floodplain contains common grassland plants and riparian woodland species. During the site visit, the floodplain area was being used for cattle grazing.

Grassland plants often include species such as wild oat (*Avena fatua*), foxtail fescue (*Vulpia myuros*), soft chess (*Bromus diandrus*), ripgut grass (*Bromus hordeaceus*), and tarweed (*Holocarpha virgata*). Wildlife species commonly observed in annual grassland include black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), western meadowlark (*Sturnella neglecta*), and gopher snake (*Pituophis melanoleucus*). Grasslands also provide important foraging habitat for many species of raptors in the study area.

Riparian woodland lines the San Joaquin River and is adjacent to the wastewater treatment plant. The riparian woodland is dominated by valley oak (*Quercus lobata*) but many other riparian tree species are also associated with this habitat type, such as cottonwood (*Populus fremontii*) and willow (*Salix spp.*). The multi-layered canopy of trees, shrubs, and herbaceous species found in valley oak riparian woodland habitat provides important habitat for an abundance of wildlife. Much of valley oak woodland in riparian areas has been removed from the Central Valley (Sawyer and Keeler-Wolf 1997). Valley oak riparian woodland is recognized by CDFG as a rare natural plant community (CNDDB 1999).

Ruderal/Wetland

At the north end of the existing wastewater treatment plant is a mitigation site that was created in 1999 to mitigate for impacts to wetlands on Salado Creek resulting from development of a residential subdivision and downstream piping of the creek to improve flood conveyance (Lopez, pers. comm., 2002). It is irrigated and is required to remain wet at all times. Although the mitigation site is reportedly intended to serve as wetland habitat, it does not currently appear to serve as important habitat for any wildlife species. It consists of a roped-off area that is irrigated through a series of shallow pools in which herbicides use is prohibited. Non-native weedy vegetation was observed growing in the area and western toad (*Bufo boreas*) tadpoles were observed in one of the shallow pools. Because this area is identified as a mitigation site, it is considered a sensitive resource.

Developed

A dairy and the existing wastewater treatment plant facilities comprise the developed portions of the study area. The existing wastewater treatment plant facilities, including treatment systems and percolation ponds, are in the eastern portion of the study area. The eastern boundary of the study area is the levee road that separates the wastewater treatment plant from the San Joaquin River floodplain.

A planted row of palm and eucalyptus trees extends along the southern edge of the study area. These trees provide cover and foraging habitat for a number of birds and rodents and are also used as nesting sites for raptors or other birds. A pair of American kestrels (*Falco sparverius*) was observed repeatedly flying to and from a tree in this area and are likely nesting there.

Wastewater Master Plan and Diablo Grande Sewer Line

In October, 2003 the City of Patterson certified a final EIR for the Patterson Wastewater Master Plan and Diablo Grande Sewer Line (EDAW, 2003, SCH# 2003042070). This previously certified final EIR is incorporated herein by reference and available for review at the City Planning Department, 1 Plaza, Patterson, California. The project included the following:

- Construction of a wastewater collection line from the Diablo Grande Specific Plan area to an existing sewer trunk line near the intersection of Sperry Avenue and American eagle Avenue.
- Construction of the first phase of a multi-phase expansion of the City's wastewater treatment plant. The expansion would increase the treatment capacity to 1.25 million gallons per day and would require up to 125 acres of land for percolation/evaporation ponds. Because the City considered several locations for the first-phase ponds, and in anticipation of future expansion of the treatment plant, the previously-certified EIR analyzed about 277 acres of land in the vicinity of the treatment plant for such use.

The properties investigated for potential percolation ponds in the previously certified EIR are shown on Figure 5.10-2. According to the assessment of potential impacts to biological resources, the properties in

question (including the wastewater treatment plant site itself) have the potential to support four special-status plant species and 25 special status wildlife species. None of the special status plant species are listed as state and/or federal Threatened or Endangered species, but all are listed on the California Native Plant Society 1B or 2 list, as discussed previously under the Regulatory Setting. Of the 25 wildlife species, five are listed as state and/or federal Threatened or Endangered:

Valley elderberry longhorn beetle
Swainson's hawk
San Joaquin kit fox

California red-legged frog
American peregrine falcon

Figure 5.10-2: Habitats in the Vicinity of the Wastewater Treatment Plant



Regulatory Setting

Federal and state endangered species legislation gives special status to several plant and animal species known to occur in the vicinity of the Study Area. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the Study Area. Such species are referred to collectively as special-status species and include the following: plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA) or the California ESA; animals listed as “fully protected” under the California Fish and Game Code; animals designated as “Species of Special Concern” by the CDFG; and plants listed as rare or endangered by the California Native Plant Society (CNPS). Wetlands are specially protected habitats and are governed by section 404 of the Clean Water Act and other laws.

Federal Regulations

Federal Endangered Species Act (16 U.S.C. §1531 et seq.)

Federal ESA provisions protect federally listed threatened and endangered species and their habitats from unlawful take. Under the federal ESA, “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” The Service’s regulations define harm to mean “an act which actually kills or injures wildlife.” Such an act “may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering” (50 CFR §17.3). Activities that may result in “take” of individuals are regulated by the Service. The U.S. Fish and Wildlife Service (USFWS) produced an updated list of candidate species 11 May 2005 (50 CFR Part 17). Candidate species are not afforded any legal protection under the federal ESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

Clean Water Act (33 U.S.C. § et seq.)

Section 404. Regulatory protection for water resources throughout the United States falls under the jurisdiction of the ACOE. Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into waters of the U.S. without a permit from the ACOE. Waters of the U.S. (often called “jurisdictional waters”) include navigable waters, waters flowing into navigable waters, and adjacent wetlands. The section 404 permitting process includes consultation with the USFWS concerning federally protected species. Federal policy mandates that projects requiring section 404 permits result in no net loss of wetland resources. Under section 404, actions in waters of the U.S. may require an individual permit, may be covered by a nationwide or general permit, or may be exempt from regulatory requirements.

Section 401. Section 401 of the CWA and its provisions protect wetland resources and ensure that federally permitted activities comply with the federal CWA and state water quality laws. Section 401 is implemented through a review process conducted by the RWQCB, and is triggered by the Section 404 permitting process. The RWQCB issues a Water Quality Certification via the 401 process that a proposed project complies with applicable effluent limitations, water quality standards, and other conditions of California law. Evaluating the effects of the proposed project on both water quality and quantity (runoff) falls under the jurisdiction of the RWQCB.

Other Federal Requirements

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and state regulations. The federal Migratory Bird Treaty Act (MBTA) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

The golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) are also afforded additional protection under the Eagle Protection Act, amended in 1973 (16 USC, Section 669 et seq.).

Executive Order 13112 - Invasive Species directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, USFWS and ACOE would issue permits and therefore would be responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

The Recovery Plan for Upland Species of the San Joaquin Valley, California

The Planning Area lies within the coverage area of the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). The primary objective of this recovery plan is the recovery of 11 endangered and threatened species, along with protection and long-term conservation of candidate species and species of special concern. The species covered in the plan inhabit grasslands and scrublands of the San Joaquin Valley, adjacent foothills, and small valleys. Species covered within this plan are classified as species of local concern (SLC) in this report. The Recovery Plan does not identify the area within and surrounding the Study Area as having regional biological significance for the species covered within the plan. The Study Area is not near or within areas proposed for reserves or where connectivity and linkages should be promoted.

State Regulations

California Endangered Species Act (Cal. Fish & Game Code §§2050 et seq.)

Provisions of the California ESA (CESA) protect state-listed threatened and endangered species. CDFG regulates activities that may result in “take” of listed individuals (i.e., “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”). Habitat degradation or modification is not expressly included in the definition of “take” under the California Fish and Game Code. Additionally, the California Fish and Game Code contains lists of vertebrate species designated as “fully protected” (California Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to federal and state-listed species, the CDFG also has produced a list of Species of Special Concern to serve as a “watch list.” Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Species of Special Concern may receive special attention during environmental review, but they do not have statutory protection. The USFWS also uses the label, Species of Concern, as an informal term that refers to those species that might be in need of concentrated conservation actions. Species of Concern receive no legal protection as a result of the designation, and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species. However, most, if not all, of these species are currently protected by state and federal laws.

Native Plant Protection Act of 1977

The Native Plant Protection Act of 1977 (Cal. Fish & Game Code §§ 1900 et seq.) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by CDFG). An exception to this prohibition in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG and give that state agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (FGC, Section 1913 exempts from take prohibition “the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way”). Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

Other State Species Requirements

CDFG maintains lists of “species of special concern” which serve as species “watch lists.” CDFG has also identified many species of special concern. Species with this status have limited distribution or the extent of their habitats has been reduced substantially, such that their populations may be threatened. Thus, their populations are monitored, and they may receive special attention during environmental review. While they do not have statutory protection, they may be considered rare under CEQA and thereby warrant specific protection measures.

Sensitive species that would qualify for listing but are not currently listed are afforded protection under CEQA. CEQA Guidelines Section 15065 (Mandatory Findings of Significance) requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society’s Lists 1A, 1B, and 2 would typically be considered under CEQA.

Sections 3500 to 5500 of the FGC outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these Sections may not be taken or possessed at any time. CDFG cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock.

Under Section 3503.5 of the FGC it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Impacts to species on the CESA endangered or threatened list associated with projects implemented under the Equal-Weight Alternatives would be considered significant. State-listed species are fully protected under the mandates of the CESA. Take of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 206.591. Authorization from CDFG would be in the form of an Incidental Take Permit.

State and local public agencies are subject to Section 1602 of the FGC, which governs construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFG. Under Section 1602, a discretionary Stream Alteration Agreement permit from CDFG must be issued by CDFG to the project applicant for subsequent projects prior to the initiation of construction activities within lands under CDFG jurisdiction.

Fish and Game Code Section 1600

Section 1600 of the Fish and Game Code requires any person, state or local government agency, or public utility proposing a project that may affect a river, stream, or lake to notify the CDFG before beginning the project. If activities will result in the diversion or obstruction of the natural flow of a stream, or substantially alter its bed, channel, or bank, or adversely affect existing fish and wildlife resources, a Streambed Alteration Agreement is required. A Streambed Alteration Agreement lists conditions of approval for the proposed project, and serves as an agreement between an applicant and the CDFG for a term of not more than five years for the performance of project activities.

Other Fish and Game Code Sections

California Fish and Game Code Section 3503 states: *"It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto"*. The Code does not specifically restrict noise producing activities within the vicinity of active nests, however; CDFG project review often considers excessive construction noise within 500 feet of an active nest as a potential disturbance that could result in nest abandonment. In such instances standard CDFG mitigation measures typically require establishment of a 200 to 500 foot buffer zone between active nests and noise-producing activities during the nesting season.

CDFG, through the Fish and Game Code, designates certain birds as Fully Protected. Sections 3511, 4700, 5050, and 5515 include provisions to protect Fully Protected (FP) species, such as 1) prohibiting take or possession "at any time" of the species listed in the statute, with few exceptions; 2) stating that "no provision of this code or any other law" shall be construed to authorize the issuance of permits or licenses to "take" the species; and, 3) stating that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession. The CDFG is unable to authorize incidental take of "fully protected" species when activities are proposed in areas inhabited by those species.

California Porter-Cologne Water Quality Control Act (Cal. Code, §§ 13000 et seq.)

The Porter-Cologne Water Quality Control Act of 1969 established the State Water Resource Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) as the principal state agencies with the responsibility for controlling water quality in California. The Act made the nine RWQCB's responsible for preparing water quality plans for areas within each region, known as basin plans. The Act authorizes the SWRCB to establish water quality principles and guidelines for long range resource planning, including groundwater and surface water management programs and control and use of recycled water.

California Environmental Quality Act (Public Resources Code §21000 et seq.)

The California Environmental Quality Act (CEQA) was enacted by the California Legislature in 1970 to provide a system of environmental review for land use, development, and management decisions for projects approved by public agencies. CEQA applies to all California government agencies, and requires a lead agency to analyze the potential environmental effects of proposed projects under its jurisdiction. CEQA establishes a framework for impact assessment and mitigation requirement determination by the lead agency for a proposed project. CEQA also requires public agencies to adopt feasible changes in

proposed projects to lessen or avoid significant environmental impacts. In addition to the primary analysis of impacts to biological resources, Section 15065 ("Mandatory Findings of Significance"), requires that a reduction in numbers of a rare or endangered species be considered a significant effect.

Non-Government Agencies

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that are found in low numbers, have limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants Believed Extinct.
- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.
- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
- List 3: Plants about Which We Need More Information - A Review List.
- List 4: Plants of Limited Distribution - A Watch List.

Plant species designated as List 3 and 4 will do not generally receive explicit protection from any government agencies.

Special-Status Plant and Wildlife Species

Reconnaissance-level surveys were conducted on 14, 15, and 21 April 2009 for habitats capable of supporting special-status plant and wildlife species. Prior to the surveys, information concerning the known distribution of threatened, endangered, or other special-status plant and wildlife species with the potential to occur in the Study Area was collected from several sources and reviewed. The sources included the CDFG's California Natural Diversity Database (CNDDB 2009) and information available through the USFWS, CDFG, technical publications, Museum of Vertebrate Zoology, and California Academy of Sciences. Other sources include the Jepson Manual (Hickman 1993), The Online CNPS Inventory of Rare and Endangered Plants (CNPS 2009), and CalFlora (2009).

A query of special-status plants and wildlife listed in the CNDDB was performed covering the U.S. Geological Survey (USGS) Patterson topographical quadrangle in which the majority of the Study Area occurs and for the 8 surrounding quadrangles. A similar 9-quadrangle query of the CNPS Inventory was also performed to generate a list of species occurring on CNPS lists 1 through 3 (CNPS 2009). A second query was performed for CNPS List 4 plant species occurring in Stanislaus County at elevations between 40 and 400 ft in California annual grassland and riparian habitats. The habitat requirements of each special-status plant and wildlife species were compared to the existing habitat conditions at the Study Area to determine the likelihood of occurrence for each species at the site (Table 5.10-3). Six wildlife species and 27 plant species were rejected from consideration due to lack of suitable habitat characteristics (see Appendix 5.10 -- City Of Patterson General Plan Update, Environmental Impact Report Biological Resources, H.T. Harvey & Associates, January, 2010). Expanded species descriptions are provided in Appendix 5.10 for the remaining 14 wildlife and 15 plant species in which suitable habitat is present on the site.

Table 5.10-3 -- Special-status Plant and Wildlife Species, Their Status, and Potential Occurrence at the Study Area.

Name	Status*	Habitat	Potential For Occurrence On Site
Federal or State Endangered or Threatened Species			
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	Elderberry shrubs in the Central Valley.	Unlikely. Only a single elderberry shrub along Del Puerto Creek in the Area west of I-5 was detected within the Study Area. The nearest CNDDDB record is located approximately 11 mi north of the Study Area.
California tiger salamander <i>Ambystoma californiense</i>	FT, SSC	Vernal or temporary pools in annual grasslands or open stages of woodlands.	Possible. Marginal habitat in Area west of I-5.
California red-legged frog <i>Rana aurora draytonii</i>	FT, SP, SSC	Streams, freshwater pools, and ponds with overhanging vegetation.	Possible. Marginal habitat present west of I-5 in Del Puerto Creek, but this species is unlikely to occur in close proximity the Central Valley floor.
Giant garter snake <i>Thamnophis gigas</i>	FT, ST	Freshwater marshes and low gradient streams with emergent vegetation; adapted to drainage canals and irrigation ditches with mud substrate.	Absent. No suitable habitat; presumed absent.
Greater sandhill crane <i>Grus canadensis tabida</i>	ST	Wetlands required for breeding; forage in nearby pastures, fields, and meadows.	Possible. Occasional transient/winter migrant throughout the Study Area.
American peregrine falcon <i>Falco peregrinus anatum</i>	SE	Forages in many habitats; requires cliffs for nesting.	Possible. Potential occasional forager throughout the entire Study Area.
Swainson's hawk <i>Buteo swainsoni</i>	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; forages in adjacent alfalfa fields, pastures, or grasslands.	Present. Suitable nesting habitat is present. While there are currently no known nests within any of the expansion areas, the entire Study Area is within 5 miles of a known active nest. Known to forage on site.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE, ST	Desert alkali scrub, annual grasslands; may forage in adjacent agricultural habitats.	Unlikely. Poor foraging and denning habitat on the site. Fragmented annual grasslands west of I-5, canals, and linear features infrequently used during dispersal events. Reconnaissance surveys in April 2009 and protocol-level surveys conducted during May and June 2002 did not detect kit foxes on or near the Study Area.
Delta button-celery <i>Eryngium racemosum</i>	SE/ CNPS List 1B	Riparian scrub (vernally mesic clay depressions); elevation 9-100 ft.	Unlikely. Suitable habitat for this species likely extirpated within the Study Area by agriculture and urban development.
Showy madia <i>Madia radiata</i>	SR/ CNPS List 1B	Cismontane woodland, valley, and foothill grassland; elevation 82-2950 ft.	Possible. Suitable habitat exists within the Study Area west of I-5.

Table 5.10-3 -- Special-status Plant and Wildlife Species, Their Status, and Potential Occurrence at the Study Area.

Name	Status*	Habitat	Potential For Occurrence On Site
California Species of Special Concern			
Western spadefoot <i>Spea hammondi</i>	SSC	Grasslands and occasionally valley-foothill hardwood woodlands; vernal pools or similar ephemeral pools required for breeding.	Possible. Suitable upland habitat in grassland habitat west of I-5; one CNDDDB record located west of the Study Area on Del Puerto Canyon Rd.
Foothill yellow-legged frog <i>Rana boylei</i>	SSC	Rocky streams in a variety of habitats. Found in the coast ranges.	Unlikely. Though this species has been recorded upstream in Del Puerto Creek, the portion of the creek within the Study Area does not provide suitable habitat for this species.
Western pond turtle <i>Actinemys marmorata</i>	SSC	Occurs in and around a wide variety of permanent or nearly permanent aquatic habitats including canals, stock ponds, lakes, streams, and rivers. Basking and upland habitat as breeding habitat.	Possible. Suitable habitat present along Del Puerto Creek; one CNDDDB record from Del Puerto Creek west of site.
San Joaquin whipsnake <i>Masticophis flagellum ruddocki</i>	SSC	Valley grasslands and saltbush scrub habitats; open, dry areas with few or no trees.	Possible. Suitable habitat is present in the hills west of I-5; one CNDDDB record from within Study Area on Del Puerto Canyon Rd.
Tricolored blackbird <i>Agelaius tricolor</i>	SSC	Breeds near fresh water in dense emergent vegetation. Forages in many habitats, including agricultural habitats and grasslands.	Possible. Suitable foraging habitat throughout Study Area. Nesting habitat is only marginal.
Burrowing owl <i>Athene cunicularia</i>	SSC	Flat grasslands and ruderal habitats. Requires ground squirrel burrows.	Possible. Suitable habitat in the margins of agricultural fields throughout Study Area and in annual grasslands west of I-5.
Short-eared owl <i>Asio flammeus</i>	SSC	Breeds in dense vegetation in open grassland and marshes.	Possible. Potential transient/winter migrant in annual grasslands west of I-5 and in the open (alfalfa and row crops) agricultural lands. Nesting habitat is absent.
Mountain plover <i>Charadrius montanus</i>	SSC	Short grasslands and plowed fields below approximately 3000 ft elevation.	Possible. Potential transient/winter migrant in open agricultural areas.
Northern harrier <i>Circus cyaneus</i>	SSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	Present. Observed foraging habitat in annual grasslands west of I-5 and in the open (alfalfa and row crops) agricultural lands; marginal breeding habitat on Study Area.
Yellow warbler <i>Dendroica petechia</i>	SSC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	Unlikely. Possible transient during migration. Suitable breeding habitat does not occur within the Study Area.
Loggerhead shrike <i>Lanius ludovicianus</i>	SSC	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	Present. Suitable foraging and nesting habitat in annual grasslands west of I-5; observed on the Study Area.

Table 5.10-3 -- Special-status Plant and Wildlife Species, Their Status, and Potential Occurrence at the Study Area.

Name	Status*	Habitat	Potential For Occurrence On Site
Pallid bat <i>Antrozous pallidus</i>	SSC	Forages over many habitats; roosts in buildings, rocky outcrops, and rocky crevices in mines and caves.	Unlikely. Suitable foraging habitat throughout Study Area. Suitable roosting habitat is not present within the Study Area.
Western mastiff bat <i>Eumops perotis</i>	SSC	Forages over many habitats; requires tall cliffs or buildings for roosting sites.	Absent. No suitable roosting habitat; potential forager throughout Study Area.
Western red bat <i>Lasiurus blossevillii</i>	SSC	Primarily roosts in mature riparian forest but also found in upland forests, woodlands, and orchards.	Possible. Marginal roosting and foraging habitat along Del Puerto Creek. Several records (Pierson et al. 2006) occur along the San Joaquin River east of the Study Area.
Hoary bat <i>Lasiurus cinereus</i>	SSC	Primarily roosts in foliage of medium to large-diameter trees.	Possible. Marginal roosting and foraging habitat along Del Puerto Creek.
American badger <i>Taxidea taxus</i>	SSC	Inhabits large areas of open fields, shrublands, and desert scrub.	Possible. Suitable foraging and denning in grassland habitat west of I-5.
California Fully-Protected Species			
White-tailed kite <i>Elanus leucurus</i>	SFP	Grasslands, open terrain (including agricultural lands), oak woodlands; generally below 2000 ft.	Present. Suitable foraging and nesting grassland habitat west of I-5 and in the open (alfalfa and row crops) agricultural lands. Observed on Study Area.
CNPS Species			
California androsace <i>Androsace elongata ssp. acuta</i>	CNPS List 4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland: elevation 490-3935 ft.	Possible. Suitable habitat is present within the Study Area west of I-5.
Big tarplant <i>Blepharizonia plumosa</i>	CNPS List 1B	Valley and foothill grassland; elevation 98-1655 ft.	Possible. Suitable habitat is present within the Study Area west of I-5.
Round-leaved filaree <i>California macrophylla</i>	CNPS List 1B	Cismontane woodland, valley and foothill woodland; elevation 49-3935 ft.	Possible. Suitable habitat is present within the Study Area, west of I-5. CNDDDB lists 2 occurrences in close proximity to the project boundaries, however location data is imprecise. Further fieldwork needed to determine presence.

Table 5.10-3 -- Special-status Plant and Wildlife Species, Their Status, and Potential Occurrence at the Study Area.

Name	Status*	Habitat	Potential For Occurrence On Site
Oakland star-tulip <i>Calochortus umbellatus</i>	CNPS List 4	Broadleaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/often serpentinite; elevation 328-2295 ft.	Unlikely. The lack of serpentine soils provides for only marginal suitable habitat within the Study Area.
Lemmon's jewelflower <i>Caulanthus coulteri</i> var. <i>lemmonii</i>	CNPS List 1B	Pinyon and juniper woodland, valley and foothill grassland; elevation 262-4000 ft.	Possible. Suitable habitat exists within the Study Area west of I-5. CNDDDB lists an occurrence in close proximity to the boundaries, however location data is imprecise. Further fieldwork needed to determine presence.
Small-flowered morning glory <i>Convolvulus simulans</i>	CNPS List 4	Chaparral (openings), coastal scrub, valley and foothill grassland/clay, serpentinite seeps; elevation 98-2295 ft.	Unlikely. Marginal suitable habitat for this species exists within the Study Area. Focused surveys recommended along the ephemeral drainages west of I-5.
Gypsum-loving larkspur <i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>	CNPS List 4	Chenopod scrub, cismontane woodland, valley and foothill grassland; elevation 328-2700 ft	Possible. Suitable habitat for within the Study Area west of I-5.
Diamond-petaled California poppy <i>Eschscholzia rhombipetala</i>	CNPS List 1B	Valley and foothill grassland; (alkaline, clay); elevation 0-3195 ft.	Possible. Suitable habitat exists within the Study Area, west of I-5. CNDDDB lists an occurrence in close proximity to the boundaries, however location data is imprecise. Follow-up surveys have been unsuccessful in relocating the occurrence.
Stinkbells <i>Fritillaria agrestis</i>	CNPS List 4	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland/clay, sometimes serpentinite; elevation 32-5100 ft.	Possible. Suitable habitat exists within the Study Area west of I-5.
Hogwallow starfish <i>Hesperivax caulescens</i>	CNPS List 4	Valley and foothill grassland (mesic clay); elevation 0-1655 ft.	Unlikely. Marginal suitable habitat for this species exists within the Study Area.
Serpentine Leptosiphon <i>Leptosiphon ambiguus</i>	CNPS List 4	Cismontane woodland, coastal scrub, valley and foothill grassland/usually serpentinite; elevation 395-3705 ft.	Unlikely. The lack of serpentine soils provide for only marginal suitable habitat within the Study Area.
Red-flowered lotus <i>Lotus rubriflorus</i>	CNPS List 1B	Cismontane woodland, valley and foothill grassland; elevation 655-1395 ft.	Unlikely. Potential habitat exists west of I-5; however the Study Area lies just below the known elevational range.
Delta woolly-marbles <i>Psilocarpus brevissimus</i> var. <i>multiflorus</i>	CNPS List 4	Vernal pools; elevation 32-1640 ft.	Unlikely. Suitable habitat for this species likely extirpated within the Study Area by agriculture and urban development.

***Listing Status**

FE	=	Federally listed Endangered
FC	=	Federal Species of Concern
ST	=	State listed Threatened
SR	=	State Rare
SSC	=	California Species of Special Concern
SP	=	State Fully Protected Species

Definitions Regarding Potential Occurrence:

Present:	Species or sign of their presence observed on the site
Likely:	Species or sign not observed on the site, but reasonably certain to occur on the site
Possible:	Species or sign not observed on the site, but conditions suitable for occurrence
Unlikely:	Species or sign not observed on the site, conditions marginal for occurrence
Absent:	Species or sign not observed on the site, conditions unsuitable for occurrence

CNPS LISTS:

- 1A – Plants presumed extinct in California
- 1B – Plants rare, threatened, or endangered in California and elsewhere
- 2 – Plants rare, threatened, or endangered in California, but more common elsewhere
- 3 – Plants about which more information is needed – a review list
- 4 – Plants of limited distribution – a watch list

CNPS THREAT CODE EXTENSIONS:

- .1 – Seriously endangered in California
- .2 – Fairly endangered in California
- .3 – Not very endangered in California

Regulated Habitats

U.S. Army Corps of Engineers Jurisdiction

Regulatory Overview

Areas meeting the regulatory definition of “Waters of the United States” (jurisdictional waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (CWA, 1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as “Waters of the United States,” tributaries of waters otherwise defined as “Waters of the United States,” the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to “Waters of the United States” (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) in combination with the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2006).

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the CWA. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California. The Regional Water Quality Control Board has jurisdiction over the issuance of National Pollutant Discharge Elimination System (NPDES) Construction Permits, which are used to manage erosion and runoff from construction sites.

Survey Results

Field surveys for potential jurisdictional waters on the Study Area were conducted in accordance with USACE regulations and guidelines on 14, 15, and 21 April 2009. WSID Lateral B, WSID Lateral C, WSID Lateral M, WSID Lateral No. 4, WSID Lateral No. 5, WSID Lateral No. 6, First Lift, and the 2 irrigation ponds are agricultural features excavated on dry land that are controlled by the PID who has maintained water rights since approximately 1914 (CALFED 2002). The majority of the laterals are concrete-lined, cleared of debris and sedimentation on an annual basis, and remain dry up to 7 months of each year (pers. comm., John Sweigard). The laterals are primarily dry from November through February of each year, and usually remain dry for most of October and March of each year. The water in each lateral originates from the Main Canal located along the west edge of the Study Area. Water in the Main Canal is pumped from the San Joaquin River approximately 30 ft upwards to the Main Canal. From there, the water is gravity-fed to each of the laterals (flow into the laterals is gate-controlled) and travels north through the Study Area, emptying into Del Puerto Creek north of the Study Area. Del Puerto Creek then flows into the San Joaquin River.

Based on prior experience with similar features and on field characteristics encountered on the Study Area, including information obtained from staff of the PID, we conclude that the laterals and irrigation ponds occurring on the site do not represent habitats within the regulatory jurisdiction of the USACE.

Both the Salado Creek and Del Puerto Creek meet the regulatory definition of “Waters of the United States,” and therefore project activities within the tributary must comply with section 404 of the CWA. The boundary of the areas falling under USACE jurisdiction is defined by the ordinary high water mark (OHWM) of the “Waters of the United States” in areas without adjacent wetlands. When adjacent

wetlands are present, the jurisdiction of the USACE extends to the boundary of the wetlands, which is defined by the limits of wetland soils, hydrology, and vegetation. Formal wetland delineation in accordance with USACE guidelines will be required in order to determine the extent of jurisdictional habitat impacted on the Study Area. Project activities, primarily culvert improvements, will require a USACE permit if the activities will take place within the OHWM of the creek or disturb any adjacent wetland habitat.

As the unnamed ephemeral drainages west of I-5 do not exhibit connectivity with any “Waters of the United States”, we conclude that they do not represent habitats within the regulatory jurisdiction of the USACE.

Jurisdiction of the California Department of Fish and Game

Regulatory Overview

The CDFG potentially extends the definition of stream to include “intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS), and watercourses with subsurface flows.” Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Such areas on the site were determined using methodology described in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607* (CDFG 1994).

Activities that result in the diversion or obstruction of the natural flow of a stream; substantially change its bed, channel, or bank; or utilize any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFG.

Survey Results

Field surveys were also conducted on 14, 15, and 21 April 2009 within the Study Area for streams and other waterways potentially under the regulatory jurisdiction of the CDFG. Given the current use and maintenance of the irrigation laterals and ponds found within the project boundaries and lack of vegetative cover, it is our opinion that the CDFG would not assert jurisdiction over these waterways. Salado Creek, Del Puerto Creek, and the unnamed ephemeral drainage (previously described) within the Study Area are subject to the regulatory jurisdiction of the CDFG under Section 1602 of the Fish and Game Code. Project activities would require a Streambed Alteration Agreement if the activities occur within the bed and banks of the creek or disturb any riparian vegetation. The remaining ephemeral drainages within the Area west of I-5 do not contain riparian vegetation and it is our opinion that the CDFG would not assert jurisdiction over these waterways.

Standards of Significance

According to the CEQA Guidelines Section 15131(a) implementation of the Equal-Weight Project Alternatives would result in a significant impact to biological resources if any of the Equal-Weight alternatives would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the US Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service

3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan

Project Impacts and Mitigation Measures

Methodology

Reconnaissance-level field surveys of the Study Area were conducted on 14, 15, and 21 April 2009 by qualified ecologists with HT Harvey and Associates to document biotic resources occurring on the site. Specifically, surveys were conducted to describe existing biotic habitats; assess the site for its potential to support special-status species and their habitats; and to identify potential jurisdictional habitats, including those regulated by the United States Army Corps of Engineers (USACE) and the California Department of Fish and Game (CDFG), but not to delineate regulated habitats in sufficient detail for permit application submittal to these agencies. The entire analysis is provided as Appendix 5.10.

In addition, the analysis of potential impacts to biological resources refers to, utilizes and incorporates by reference environmental documents which are summarized below and available for review at the City Planning Department, 1 Plaza, Patterson, CA:

Patterson Wastewater Master Plan and Diablo Grande Sewer Line Final Environmental Impact Report, EDAW, October, 2003 (SCH# 20023042070)

In October, 2003 the City of Patterson certified a final EIR for the City's Wastewater Master Plan and sewer line extension to serve Phase I of the Diablo Grande project. The project included the following:

- Construction of a wastewater collection line from the Diablo Grande Specific Plan area to an existing sewer trunk line near the intersection of Sperry Avenue and American eagle Avenue.
- Construction of the first phase of a multi-phase expansion of the City's wastewater treatment plant. The expansion would increase the treatment capacity to 1.25 million gallons per day and would require up to 125 acres of land for percolation/evaporation ponds. Because the City considered several locations for the first-phase ponds, and in anticipation of future expansion of the treatment plant, the certified EIR analyzed about 277 acres of land in the vicinity of the treatment plant for such use.

The properties investigated for potential percolation ponds in the previously certified EIR are shown on Figure 5.10-2. According to the assessment of potential impacts to biological resources, the properties in question (including the wastewater treatment plant site itself) have the potential to support four special-status plant species and 25 special status wildlife species. None of the special status plant species are listed as state and/or federal Threatened or Endangered species, but all are listed on the California Native Plant Society 1B or 2 list, as discussed previously under the Regulatory Setting. Of the 25 wildlife species, five are listed as state and/or federal Threatened or Endangered:

Valley elderberry longhorn beetle
Swainson's hawk
San Joaquin kit fox

California red-legged frog
American peregrine falcon

The biological investigation (EDAW, 2003) identified the following potentially significant impacts associated with improvements for the treatment plant:

- Construction of the percolation ponds would result in the loss of Swainson's hawk foraging habitat. Construction activities associated with the percolation ponds and collection system could result in the disturbance of active Swainson's hawk nests.
- Expansion of the treatment plant at the existing wastewater treatment plant could adversely impact western pond turtles.
- Construction of the percolation/evaporation ponds could result in the loss of burrowing owl nests.
- Construction activities for the evaporation/percolation ponds could result in the disturbance and loss of active raptor nests.
- Construction of the percolation/evaporation ponds could affect riparian woodland and a biological mitigation site on the northern side of the treatment plant site. At the north end of the existing wastewater treatment plant is a mitigation site that was created in 1999 to mitigate for impacts to wetlands on Salado Creek resulting from development of a residential subdivision and downstream piping of the creek to improve flood conveyance (Lopez, pers. comm., 2002). It is irrigated and is required to remain wet at all times. Although the mitigation site is reportedly intended to serve as wetland habitat, it does not currently appear to serve as important habitat for any wildlife species. It consists of a roped-off area that is irrigated through a series of shallow pools in which herbicides use is prohibited. Non-native weedy vegetation was observed growing in the area in 2002 and western toad (*Bufo boreas*) tadpoles were observed in one of the shallow pools. Because this area is identified as a mitigation site, it is considered a sensitive resource.

In each case the Final EIR recommended mitigation measures to reduce the potential impacts to a less than significant level. Such measures include:

- Avoidance of sensitive habitats during construction activities.
- Management of the timing of construction to avoid disturbance.
- Erosion control measures during construction activities.
- Pre-construction surveys to determine presence of special status species and to recommend avoidance measures.
- Following the permit requirements of other regulatory agencies, such as the US Army Corps of Engineers, Department of Fish and Game and Regional Water Quality Control Board.

The Villages of Patterson Final Environmental Impact Report Turnstone Consulting, August, 2006 (SCH#2006032043)

In August, 2006 the City of Patterson certified a final environmental impact report for The Villages of Patterson project. The Villages consists of a mixed-use development project on about 692 acres located in the northeast corner of the City's General Plan area. At full buildout the project would accommodate about 3,100 dwelling units and about 990,000 square feet of non-residential floor area.

The biological investigation (by HT Harvey and Associates, 2006) concluded that the following special status species have the potential to occupy the project site:

Swainson's hawk	Northern harrier
Western burrowing owl	Loggerhead shrike
Tricolored blackbird	

The study identified the following potentially significant impacts to biological resources:

- Implementation of the Development Plan could result in disturbance to nesting Swainson's Hawks.
- Implementation of the Development Plan would result in loss of Swainson's hawk foraging habitat.
- Implementation of the Development Plan would result in loss of occupied Burrowing Owl habitat.
- Implementation of the Development Plan would result in indirect impacts to downstream biological resources.

In each case the certified final EIR recommended mitigation measures to reduce potential impacts to a less than significant level. These measures include:

- Avoidance of sensitive habitats during construction activities.
- Management of the timing of construction to avoid disturbance.
- Erosion control measures during construction activities.
- Pre-construction surveys to determine presence of special status species and to recommend avoidance measures.
- Following the permit requirements of other regulatory agencies, such as the US Army Corps of Engineers, Department of Fish and Game and Regional Water Quality Control Board.

West Patterson Projects Final Environmental Impact Report
Turnstone Consulting, January, 2003 (SCH#s 2001022031 and 2001032037)

In January, 2003, the City of Patterson certified a final environmental impact report for the West Patterson Projects which consisted of three parts:

- The Patterson Gardens project, consisting of about 305 acres located at the southwest corner of Ward Avenue and Sperry Avenue. The project would accommodate about 3,375 dwelling units and about 300,000 square feet of non-residential development. And,
- The West Patterson Business Park Master Development Plan area, consisting of about 820 acre located west of Baldwin Road and east of Interstate 5.
- Expansion of the wastewater treatment plant to construct percolation/evaporation ponds totaling about 177 acres.

The biological investigation (by HT Harvey and Associates, 2002) concluded that the following special status species have the potential to occupy the project site:

Swainson's hawk	San Joaquin kit fox
Northern harrier	California red-legged frog
California tiger salamander	Western burrowing owl
Giant garter snake	American peregrine falcon
Loggerhead shrike	Greater sandhill crane
Mountain plover	Western spadefoot
Western pond turtle	San Joaquin whipsnake
Double-crested cormorant	Long-billed Curlew
California Gull	Golden Eagle
Northern Harrier	Ferruginous Hawk
Prairie Falcon	Sharp-shinned Hawk
Cooper's Hawk	Loggerhead Shrike
Short-eared Owl	California Horned Lark
Tricolored blackbird	Yellow Warbler
White-tailed Kite	Pallid Bat
Western Mastiff Bat	Valley Elderberry Longhorn Beetle

No special status plant species were presumed present in the study area.

The assessment of biological impacts concluded the following:

- The Business Park Plan site does not contain jurisdictional waters (USACE 2002).
- Given the current use and maintenance of Lateral 6 South, and its lack of vegetative cover, it is unlikely that the California Department of Fish and Game will assert jurisdiction over this waterway.
- There are no aquatic habitats on the Keystone Pacific portion of the Business Park site.
- The USACE has verified 0.36 acres of jurisdictional waters on Salado Creek (USACE 2001; rev. 2002).
- The bed and banks of Salado Creek are potentially subject to the regulatory jurisdiction of the CDFG.
- Development of the West Patterson project area would result in loss of habitat for, and potential take of, San Joaquin kit fox.
- Development of the West Patterson project area would result in loss of foraging habitat for Swainson's hawks.
- Development of the West Patterson project area and wastewater evaporation pond site(s) would result in loss of habitat for burrowing owls and potentially could result in take of individual burrowing owls.
- Excavation of Salado Creek on the Patterson Gardens site would impact 0.36 acres of Jurisdictional Waters.
- Development of the West Patterson project area would potentially result in disturbance of nesting raptors during construction.
- Certain construction activities could potentially affect western pond turtles.
- Construction of an additional wastewater pond and expansion of the wastewater treatment plant could result in temporary disturbance, direct, or indirect, impacts to the biological mitigation site located immediately north of the existing wastewater treatment plant.
- Construction activities could inadvertently impact riparian woodland located adjacent to the northeastern-most percolation pond site.

For these potentially significant impacts, the certified final EIR recommended mitigation measures to reduce the potential impacts to a less than significant level. These measures include:

- Avoidance of sensitive habitats during construction activities.
- Management of the timing of construction to avoid disturbance.
- Erosion control measures during construction activities.
- Pre-construction surveys to determine presence of special status species and to recommend avoidance measures.
- Following the permit requirements of other regulatory agencies, such as the US Army Corps of Engineers, Department of Fish and Game and Regional Water Quality Control Board.
- Compensation for the potential loss of habitat.

Overview of Project Impacts

Each of the Equal-Weight Alternatives designates land for urban development within a 20-year and 40 year buildout growth boundary. Table 5.10-4 provides a summary of the different habitat types and corresponding acreage associated with each Equal-Weight Alternative and for the 20-year and 40 year buildout growth boundaries.

Table 5.10-4: Summary of Habitats And Corresponding Acreage For The Study Area, City Limits, Sphere of Influence and Equal-Weight Alternatives

Habitat Type	Study Area	City Limits	Sphere of Influence	Compact Development Plan			Jobs Emphasis Alternative			PC Env Review Plan		
				Total In 20 Year Area	Total In 40 year buildout Area	Both Areas Combined	Total In 20 Year Area	Total In 40 year buildout Area	Both Areas Combined	Total In 20 Year Area	Total In 40 year buildout Area	Both Areas Combined
Irrigated Row Crop - Alfalfa	1,789.8	187.7	400.8	1,006.0		1,006.0	517.0	1,646.0	2,163.0	944.0	64.0	1,008.00
Aquatic	57.9	16.8	41.0	47.0	2.7	49.7	47.9	6.0	53.9	53.6	3.5	57.08
California Annual Grassland	415.5	0.0	0.0	0.0	0.0	0.0	0.0	415.0	415.0	0.0	415.0	415.00
Orchard	3,562.2	662.4	973.6	1,299.1	442.0	1,741.1	0.0	742.0	2,968.0	0.0	836.8	3,452.80
Redwood Plantation	7.8	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	7.8		7.82
Riparian	16.1	2.3	2.3	0.0	4.2	4.2	11.0	3.0	14.0	9.0	5.1	14.08
Irrigated Row Crop/Other	2,743.0	519.4	852.1	0.0	554.0	1,623.1	1,584.0	185.0	1,769.0	2,571.0	951.0	3,522.00
Ruderal	155.0	2.4	2.4	2.4	0.2	2.6	57.0	80.0	137.0	5.7	0.0	5.69
Vernal Pool	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.8	0.81
Vineyard	49.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.10
Sub-Total:	8,797.3	1,391.0	2,272.1	3,423.6	1,003.1	4,426.7	4,442.9	3,085.8	7,528.7	6,256.2	2,276.2	8,532.38
Developed/Other:	3,970.8	2,429.0	2,694.9	3,079.4	158.9	3,237.3	3,228.1	708.2	3,936.3	3,581.8	331.8	3,913.62
Total:	12,768.0	3,820.0	4,967.0	6,503.0	1,162.0	7,664.0	7,671.0	3,794.0	11,465.0	9,838.0	2,608.0	12,446.0

Sources: HT Harvey, 2010, HT Harvey, 2006, HT Harvey, 2002, CMCA, 2010

Table 5.10-5: Habitats Associated With Other Components of the General Plan

Land Use	Habitat Type	Acres
South County Corridor	Irrigated Row Crop/Alfalfa	29.05
	Irrigated Row Crop/Other	6.8
	Orchard	7.16
	Riparian	0.04
	Total:	43.4
South County Corridor Alternate Route	Irrigated Row Crop/Alfalfa	29.0
	Irrigated Row Crop/Other	16.0
	Riparian Woodland	4.0
	Riparian	3.0
	Total:	52.0
Southern By Pass	Irrigated Row Crop/Alfalfa	20.0
	Orchard	23.0
	Irrigated Row Crop/Other	12.0
	Total:	55.0
Regional Park	Irrigated Row Crop	50.0
Wastewater Treatment Plant	Irrigated Row Crop/Alfalfa	74.0
	Orchard	144.0
	Irrigated Row Crop/Other	381.0
	Total:	599.0
Zacharias Road Interchange	Irrigated Row Crop	20.0
Las Palmas/E. Main Street Bridge Widening	Riparian	2.0
Sources: HT Harvey, 2010, HT Harvey, 2006, HT Harvey, 2002, CMCA, 2010		

Overview Draft General Plan Policy Response

The draft General Plan includes the following policies that directly address the potential impact of urban development under each of the Equal-Weight Alternatives. In addition, the policy document recommends implementation measures and specific requirements for the mitigation of potential impacts to sensitive biological resources (see requirements listed under Appendix NR of the Natural Resources Element listed as BIO-1, BIO-2, etc.) to be applied as conditions for future development to address impacts to specific biological resources.

NR-3.1 Public awareness. The City shall encourage and support educational programs that enhance public appreciation and awareness of the natural environment, and programs on how to manage development to preserve native wildlife populations.

- NR-3.2 Protection of sensitive species.** Prior to the approval of a project with the potential to adversely impact special status species or their habitat, the City shall require evidence of compliance with the relevant provisions of state and federal laws relating to the preservation of rare, threatened, or endangered species and their habitat. Such laws include, but are not limited, the federal and state Endangered Species Acts, the federal Clean Water Act, and the federal Rivers and Harbors Act.
- NR-3.3 Overriding considerations.** Unless there are significant overriding considerations, the City shall not approve projects that would adversely impact rare, threatened, or endangered wildlife or plant species or their habitats.
- NR-3.4 On-site resource preservation.** The City shall encourage new development to preserve on-site natural elements that contribute to the community's native plant and wildlife species value and to its aesthetic character.
- NR-3.5 Agency coordination.** The City shall support, and participate in, local and regional efforts of local, state and federal resource agencies (e.g. Stanislaus County, California Department of Fish and Game, Army Corps, United States Fish and Wildlife Service) to protect, restore and maintain viable, contiguous areas of habitat for sensitive plant and animal species.
- NR-3.6 Project-specific surveys for rare plants.** Where future development projects have the potential to impact natural plant communities, the City shall require the project applicant to conduct a rare plant survey prepared by a qualified biologist in accordance with applicable guidelines of the USF&WS, CDFG and CNPS. The survey shall identify and map any existing rare, threatened, or endangered plant species. If any of these species are found, mitigation measures shall be developed within the project-level CEQA document and implemented with performance monitoring to avoid significant impacts. The project applicant shall be required to consult with the CDFG and USFWS regarding appropriate mitigation for potential impacts to each sensitive plant species found to occur at the Study Area. Mitigation may include (but is not limited to) the acquisition and permanent protection of habitat for the subject species of concern, in addition to the implementation of project-specific mitigation measures designed to reduce potential impacts to individual animals. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed project and its potential impacts to the subject species.
- NR-3.7 Wildlife surveys for individual projects.** Where future development projects have the potential to adversely impact sensitive wildlife resources, the City shall require the project applicant to conduct a biological field survey to assess habitat suitability and wildlife utilization of the Study Area. All biological field surveys shall be prepared consistent with the requirements of relevant state and federal resources agencies, and each project applicant shall consult with applicable state and federal agencies regarding the results of these surveys and appropriate mitigation measures. Additionally, species-specific surveys shall be conducted in accordance with current guidelines for each rare, threatened, and endangered animal species potentially occurring at the site. If any sensitive wildlife species are found to occur on or utilize the existing habitat as a proposed Study Area, the project applicant shall be required to consult with CDFG and USFWS regarding appropriate mitigation prior to any City action on a development entitlement request. Mitigation may include (but is not limited to) the acquisition and permanent protection of habitat for the subject species of concern, in addition

to the implementation of project-specific mitigation measures designed to reduce the potential impacts for individual animals. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed projects and its potential impacts to the subject species.

- NR-3.8 Riparian habitat protection.** The City shall preserve the ecological integrity of creek corridors, canals, and drainage ditches that support riparian resources by preserving native riparian plants and, to the extent feasible, removing invasive nonnative plants. If preservation of the ecological integrity of existing resources is found to be infeasible, adverse impacts to riparian resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations.
- NR-3.9 Wetland protection.** The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetland areas, to the extent feasible. If preservation of the ecological integrity of existing wetland resources is found to be infeasible, adverse impacts to such resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations.
- NR-3.10 Monitoring.** Monitoring of mitigation and restoration activities shall be consistent with requirements for each species or habitat as prescribed by the relevant regulatory jurisdictional agencies. For listed or candidate species, species of special concern, or sensitive habitats for which no mitigation or avoidance measures have been published, the City shall require evidence of coordination with the responsible agencies prior to acceptance of mitigation, avoidance measures, or monitoring requirements.
- NR-3.11 Open space conservation.** The City shall continue to preserve, protect, and provide access to designated open space areas that may be established along the San Joaquin River, Del Puerto Creek, and undevelopable floodplains.

Loss of Aquatic Habitat

Impact 5.10-1 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives within the 20-year and 40 year buildout growth boundaries will result in the loss of aquatic habitat within concrete- and soil-lined laterals and irrigation ponds. This impact is considered less than significant.

Development within Study Area would result in the permanent loss of approximately 15.23 acres of exposed aquatic habitat in the laterals and irrigation ponds. As previously described, these are artificially created for the conveyance and storage of irrigation water. Vegetation was not apparent at the time of the survey. They do not appear to be jurisdictional Waters of the United States, subject to USACE, nor do they come under the Section 1600 provisions of the California Fish and Game Code administered by the CDFG. Impacts associated with converting the exposed canals to closed conveyance features or removing the ponds are therefore considered to be **less than significant**.

Additional Mitigation

None required.

Loss of Orchards, Irrigated Row Crops, Ruderal, Redwood Plantation and Developed Areas

Impact 5.10-2 Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in the loss of orchard, vineyard, irrigated agriculture/other, ruderal, redwood plantation, and developed habitats. These impacts are considered less than significant.

Orchards, vineyard, irrigated agriculture/other, ruderal, and developed habitats predominately support common plant and wildlife species. These habitats are locally common (in 1998, 166,560 acres in Stanislaus County were classified as prime farmland), the plant species present within these areas are regionally common.

The United States Department of Agriculture, Natural Resources Conservation Service, has classified nearly all of the land between Interstate 5 and the San Joaquin River in Stanislaus County as prime agricultural land (USDA, 2001). Prime agricultural land is defined as “land that has the best combination of physical and chemical characteristics for producing ...agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion...” (7 U.S.C. Sec. 4201 (c)(1)(A)). Prime farmland does not include land already in, or committed to, urban development.

The biotic resources associated with these habitats will continue to be abundant following development of the Study Area associated with any of the Equal-Weight Alternatives. Biological impacts associated with converting these habitats are therefore considered to be less than significant. See section 5.11 for analysis of potential impacts associated with the conversion of prime agricultural land. This impact is considered less than significant.

Draft General Plan Policy Response

Goals and Policies

Goal NR-2 To protect and preserve local agricultural lands and to prevent their premature conversion to urban uses. [There are numerous policies which accompany this goal, and are incorporated here by reference.]

Implementation Measures

- NR-3 The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program will address at least the following:
1. The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
 2. Criteria for assessing the suitability of agricultural lands to be permanently protected.

3. Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are not limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other farmland conservation mechanism.

Additional Mitigation

None required.

Loss of California Annual Grassland

Impact 5.10-3 Urban development west of Interstate 5 accommodated by the Jobs Emphasis or PC Environmental Review Plan Alternatives within the 40 year buildout growth boundaries will result in the loss of California annual grassland habitat. This impact is considered less than significant.

The California annual grassland habitat located west of I-5 is moderately disturbed by grazing, and predominantly supports common plant species. Because of their abundance throughout this region and the state (a contiguous band stretching over 100 miles to the north and south west of Interstate 5), impacts associated with converting these habitats are considered to be less than significant.

Additional Mitigation

None required.

Loss of Foraging Habitat for Sandhill Cranes and Peregrine Falcons

Impact 5.10-4 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in the loss of foraging habitat for greater sandhill crane and American peregrine falcon. These impacts are considered less than significant.

Greater sandhill crane and American peregrine falcon may only occur as occasional visitors, migrants, transients, or foragers within the Study Area. Development of the Study Area as contemplated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives would have no effect on the breeding success of either of these species, although it could potentially result in a small reduction of foraging or wintering habitat available to them regionally.

According to the International Crane Foundation, “Loss and degradation of riverine and wetland ecosystems are the most important threats to Sandhill Crane populations. For the migratory populations, this is of greatest concern in staging and wintering areas. Spring staging areas along the Platte River in Nebraska are of special concern because of their importance to the migratory subspecies and the development pressures facing this region. Approximately 80% of all Sandhill Cranes utilize a 75-mile stretch of the Platte River in spring migration. Elsewhere, small breeding populations can face disproportionate mortality on fall staging areas due to over-hunting. Residential and commercial development pressures

facing lands occupied by birds belonging to non-migratory subspecies in Mississippi, Florida, and Cuba also pose significant threats.”¹

Critical Habitat area for the American Peregrine Falcon has been designated in northern California, near the city of Santa Rosa (Federal Register, Vol. 42, No. 155 p. 40685). There are no areas of appropriate breeding habitat (especially steep cliffs) in the planning area. The species is known to exist throughout North America. The falcon was “de-listed” from the federal act due to recovery.² It is listed as endangered under the California act.

Due to the abundance of similar habitats regionally the development accommodated by any of the Equal-Weight Alternatives is expected to have a **less than significant** impact on these species, and no mitigation measures are required.

Additional Mitigation

None required.

Loss of Habitat for Certain Special-Status Species

Impact 5.10-5 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in the loss of habitat for certain special-status wildlife species. These impacts are considered less than significant.

The Study Area is outside the known distribution of, or there is a lack of suitable habitat for, the giant garter snake and the western mastiff bat. No impacts would occur to these species, which are absent from the Study Area.

Some special-status wildlife species may occasionally visit the Study Area during migration or during transient movements. Similarly, some may occasionally forage in small numbers on the site. These species include the American peregrine falcon, greater sandhill crane, foothill yellow-legged frog, mountain plover, tricolored blackbird, short-eared owl, yellow warbler, and pallid bat. Development of the Study Area as contemplated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternative will have no effect on the breeding success of any of these species, although it may result in a small reduction of foraging habitat and a small reduction in the value of roosting habitat available to some of these species on a regional level. Habitat loss associated with the future projects covered by the Equal-Weight Alternatives would constitute a less-than-significant effect to these species due to the abundance of similar habitats regionally and the infrequency with which these species might occur on the Study Area.

Some special-status wildlife species may be present on the Study Area in small numbers though the quality of habitat is already diminished by existing human disturbance. These species include the San Joaquin whipsnake, northern harrier, loggerhead shrike, American badger, western red bat, and hoary bat. Development accommodated by any of the Equal-Weight Alternatives will have no effect on the breeding success of any of these species, although it may result in a small reduction of foraging habitat and a small reduction in the value of roosting habitat available to some of these species on a regional level.

¹ <http://www.savingcranes.org/sandhillcrane.html>

² <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0IH>

Habitat loss associated with the future projects covered by the Patterson General Plan would constitute a **less than significant effect** to these species due to the abundance of similar habitats regionally.

Additional Mitigation

None required.

Loss of Vernal Pool Habitat

Impact 5.10-6 Development west of Interstate 5 accommodated by the Jobs Emphasis and PC Environmental Review Plan Alternatives within the 40 year buildout growth boundary may result in the loss of vernal pool habitat. This impact is considered a potentially significant impact.

Although the single vernal pool on the Study Area is heavily disturbed with little ability to support sensitive plant or animal species, CDFG asserts jurisdiction over stream courses and waterways as stated in sections 1600-1607 of the California Fish and Game Code. The Army Corps of Engineers also has jurisdiction and maintains a “no net loss” policy related to wetlands. Where avoidance of these habitats is not feasible, full mitigation at ratios required by the Corps will be required, in addition to a 404 permit and 401 certification, as described in the Regulatory Setting above. A §1602 agreement would also be required from the Department of Fish and Game. Construction activities that impact areas defined as “wetlands” under CDFG policy may be considered significant under CEQA and are addressed below under Impact 5.10-7.

Draft General Plan Policy Response

Policies

- NR-3.4 On-site resource preservation. The City shall encourage new development to preserve on-site natural elements that contribute to the community’s native plant and wildlife species value and to its aesthetic character.
- NR-3.9 Wetland protection. The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetland areas, to the extent feasible. If preservation of the ecological integrity of existing wetland resources is found to be infeasible, adverse impacts to such resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations. (see also Implementation Measures and Appendix NR)

Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-1 Pre-Construction Surveys and Agency Coordination. Pre-construction surveys shall be conducted prior project related activities that may impact wetland areas. If these areas will be impacted by project activities, CDFG will request adequate measures to offset impacts to wetland resources. Early consultation with CDFG is recommended to determine adequate protocol, as project modification and/or mitigation measures may be necessary and will require agency approval.

Compliance with existing regulatory requirements along with recommended policies and implementation measures will reduce potential impacts to vernal pools to a **less than significant level**.

Additional Mitigation

None required.

Loss of Riparian Habitat

Impact 5.10-7 Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could result in the loss of riparian habitat. This impact is considered potentially significant.

There are approximately 16 acres of riparian habitat in the study area. Of these, approximately five acres may be adversely impacted by development accommodated by the Equal-Weight Alternatives. Construction activities associated with the Equal-Weight Alternatives may result in the loss of riparian habitat occurring along Del Puerto Creek and Salado Creek, on Elfers Road adjacent to an irrigation pond, along the San Joaquin River where bridges will be constructed or widened, and along an unnamed drainage west of I-5, resulting in significant impacts to sensitive habitats. Both Salado Creek and Del Puerto Creek meet the regulatory definition of “Waters of the United States,” and therefore project activities within the tributary must comply with section 404 of the Clean Water Act. The boundary of the areas falling under USACE jurisdiction is defined by the OHWM of the “Waters of the United States” in areas without adjacent wetlands. When adjacent wetlands are present, the jurisdiction of the USACE extends to the boundary of the wetlands, which is defined by the limits of wetland soils, hydrology, and vegetation. The San Joaquin River, Salado Creek, Del Puerto Creek, and the unnamed ephemeral drainage (previously described) within the Study Area are also subject to the regulatory jurisdiction of the CDFG under Section 1602 of the Fish and Game Code.

Draft General Plan Policy Response

Policies

- NR-3.8 Riparian habitat protection. The City shall preserve the ecological integrity of creek corridors, canals, and drainage ditches that support riparian resources by preserving native riparian plants and, to the extent feasible, removing invasive nonnative plants. If preservation of the ecological integrity of existing resources is found to be infeasible, adverse impacts to riparian resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations. (see also Implementation Measures and Appendix NR)
- NR-3.9 Wetland protection. The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetland areas, to the extent feasible. If preservation of the ecological integrity of existing wetland resources is found to be

infeasible, adverse impacts to such resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations. (see also Implementation Measures and Appendix NR)

Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-2 Pre-construction surveys shall be conducted prior to project related activities that may impact the riparian resources in the Study Area (including in the vicinity of Del Puerto Creek and Salado Creek, the Elfers Road irrigation pond, and the unnamed drainages west of I-5) in order to identify significant impacts. If riparian areas and regulated habitats will be impacted by project activities, USACE permits and a Streambed Alteration Agreement from CDFG will be required. Early consultation with the USACE and CDFG is recommended to determine adequate protocols, as project modification and/or mitigation measures may be necessary and will require agency approval.

Furthermore, if construction activities would result in impacts to any of the special-status species identified in Table 5.10-3, mitigation measures for that species described within the impact section of this report shall be implemented. If surveys indicate that impacts would result to a special-status species not identified in Table 5.10-3 or for which mitigation measures are not described in this report, avoidance and minimization measures to reduce project impacts to less than significant levels shall be determined through coordination with the City of Patterson, CDFG, and USFWS.

With application of the above recommended policy, impacts to riparian habitats are considered **less than significant**.

Additional Recommended Mitigation

- BIO-34 A no-disturbance area of 100 feet shall be established from the high water mark, or outside edge of existing riparian vegetation, whichever is greater, along Del Puerto Creek and Salado Creek, and existing wetland and vernal pool habitats.

Loss of Irrigated Agriculture/Alfalfa Areas

Impact 5.10-8 Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could result in the loss of irrigated agriculture/alfalfa habitat. This impact is considered less than significant.

Although irrigated alfalfa is a common habitat type in the region, and loss of this habitat alone is not significant, Swainson's hawks utilize this habitat type for foraging. Implementation measure NR-13

described below under Swainson's hawk would reduce the impact related to loss of this habitat to a less-than-significant level.

Additional Mitigation

None are required.

Impacts to State and Federally Listed Wildlife Species

Six state or federally-listed species were identified with the potential to occur in the Study Area: California red-legged frog, California tiger salamander, greater sandhill crane, American peregrine falcon, Swainson's hawk, and San Joaquin kit fox. Impacts of the proposed project, including construction activities associated with future development projects, may contribute to the injury and mortality of or loss of habitat for these listed wildlife species.

Future specific projects could also contribute to indirect impacts to listed wildlife species. Residential development and construction of related infrastructure will result in additional humans and pets, increasing the chances of encroachment into habitat occupied by listed species. Recreational use (trampling, off-road vehicles) and prohibited activities (illegal dumping, illegal collection of listed wildlife species) within foraging and breeding habitats could disrupt vital activities, degrade suitable habitat, and result in killing and/or removal of individuals. The use of chemicals and poisons (pesticides, herbicides, fertilizers, and industrial or household toxic chemicals) within or adjacent to developed areas may increase the risk of harm to these species through exposure. Additional edge effects from future developments (habitat fragmentation, increased access of natural habitats for domestic pets) may contribute to habitat degradation for and increased mortality of listed wildlife species. The likelihood of introducing or further expanding areas occupied by invasive exotic species, such as weeds, feral dogs and cats, predatory fish, and bullfrogs, will increase as the population of humans within the Study Area increases. Additional details on potential impacts to these listed wildlife species are provided below.

Elderberry Longhorn Beetle

Impact 5.10-9 Urban development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could accommodate individual projects near Del Puerto Creek that could disturb Valley elderberry longhorn beetle (VELB) and result in the loss of suitable habitat. This impact is considered potentially significant.

The federally threatened VELB may occur on the Study Area. An elderberry shrub was observed near Del Puerto Creek in the area west of I-5 and may also be present downstream along the boundary of this area. To assure that Valley elderberry longhorn beetles are not disturbed by construction activities, a qualified biologist shall conduct pre-construction surveys in accordance with the USFWS's Conservation Guidelines for Valley Elderberry Longhorn Beetle (USFWS 1999) for projects occurring within or adjacent to suitable habitat.

Physically damaging the elderberry shrubs, causing dust or other debris to cover foliage, or otherwise harming the shrubs in any manner during project activities would constitute a potentially significant impact.

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Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-3 Surveys. The project and immediately adjacent areas should be surveyed and mapped for the presence of the valley elderberry longhorn beetle and its elderberry host species plant by a qualified biologist. Mitigation is not required for plants with no stems measuring 1 inch or greater in diameter at ground level, and surveys are valid for a period of 2 years.
- BIO-4 Avoidance. Avoid and protect elderberry shrubs whenever possible. If suitable habitat for the beetle occurs on the Study Area, these areas should be designated as avoidance areas that will be protected from disturbance during the construction of the project. Any beetle habitat that cannot be avoided should be considered impacted and appropriate mitigation should be implemented as described below.

Core avoidance areas include all areas within 20 ft of the dripline of any elderberry plant with a stem measuring 1 inch or greater in diameter at ground level. Such core areas should not be disturbed during construction. Buffer avoidance areas include all the area within 100 ft of any elderberry plant with a stem measuring 1 inch or greater at ground level.

1. Temporary construction fencing shall be constructed to provide a minimum setback of at least 20 ft from the dripline of each potential host elderberry plant.
 2. A tailgate education program on the valley elderberry longhorn beetle shall be given to each construction worker and all personnel working within the Study Area to avoid adverse effects on the beetle.
 3. Signs shall be placed every 50 ft along the edge of the exclusion fence to help identify the area as a protected area for the valley elderberry longhorn beetle for the duration of the project.
 4. The protected area shall be restored if any damage to the area occurs during the project construction period and maintained as a natural area.
- BIO-5 Elderberry plants shall be transplanted to a mitigation area if they cannot be avoided by the proposed project. All elderberry plants with one or more stems measuring 1 inch or greater in diameter at ground level should be transplanted to a mitigation area. The following guidelines shall be followed:
1. A qualified biologist shall monitor the project and mitigation sites for the duration of the transplanting to ensure no unauthorized take or loss of individuals occurs.
 2. Elderberry plants shall be transplanted after shrubs have lost their leaves and are dormant, usually from November through the first 2 weeks in February.
 3. Transplanting shall be conducted according to standard procedures set forth by the USFWS. This includes planting additional seedlings or cuttings at various ratios for plants removed for translocating.

4. A mitigation area set aside for translocated plants shall provide habitat for the beetle in perpetuity. The mitigation area should provide at least 1800 ft² for each transplanted elderberry shrub and follow USFWS guidelines for other associated native plants to be planted within the area. This mitigation area shall be weeded by mechanical means (no herbicides) once a year.
5. The mitigation area shall be monitored for the general condition of the mitigation area, the condition of the elderberry plants, and the associated native plants, for a period of 10 consecutive years with surveys and reports every year, or for 15 years of monitoring with surveys and reports on years 1, 2, 3, 5, 7, 10, and 15. Reports shall be provided to the USFWS.

Implementation of the above measures at the time of project-specific development will reduce potential impacts to a **less than significant level**.

Additional Mitigation

None required.

Tiger Salamander

Impact 5.10-10 Individual projects accommodated by the Jobs Emphasis or PC Environmental Review Plan Alternatives within the 40 year buildout growth boundary in the area west of Interstate 5 could disturb California tiger salamander and result in the loss of suitable habitat. This impact is considered potentially significant.

Although California tiger salamander (CTS) breeding habitat is absent from the most of the Study Area, potential breeding habitat in the form of a vernal pool is present on the western edge of the area west of I-5. Though this pool was dry at the time of the survey, it was not possible to definitively determine if this pool is capable of ponding water for the minimum 10 consecutive weeks required to provide CTS breeding habitat because the survey occurred in the 3rd straight year of below normal rainfall. There is suitable aestivation habitat surrounding this pool within the area west of I-5 and off site to the west. The pool was surrounded within the Study Area by a newly planted orchard. Some aestivation habitat remained present within this orchard, as the areas between rows had not been disked, and there were still small mammal burrows present. Portions of the annual grassland habitat present within the area west of I-5 both north and south of the orchard are within the 1.24 mi distance that CTS are capable of traveling from breeding pools to aestivation sites (Trenham and Shaffer 2005, Orloff 2007), and therefore are potential CTS aestivation habitat should this pool be capable of supporting CTS breeding.

Because CTS may travel considerable distances from breeding pools to aestivation sites (Trenham and Shaffer 2005, Orloff 2007), and uncertainty exists regarding the use of some potential breeding pools in the Study Area due to a lack of comprehensive and recent surveys, it is prudent, pending the results of a detailed analysis of potential breeding pools, to conclude that CTS may aestivate within all suitable annual grassland and wetland habitat within the Area west of I-5 portion of the Study Area.

Draft General Plan Policy Response

Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-6 Conduct pre-construction surveys for California tiger salamander. To assure that CTS are not disturbed by construction activities, a qualified herpetologist shall conduct pre-construction surveys for projects within the Area west of I-5. The survey shall be conducted in accordance with the October 2003 Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander, jointly prepared by the USFWS and the CDFG. The 1st step of the survey shall consist of a CTS site assessment that determines the presence or absence of suitable breeding habitat or suitable aestivation habitat within 1.24 mi of a suitable breeding habitat, even if it occurs off site. A report of the CTS site assessment should then be provided to the USFWS and CDFG, who would then provide recommendations as to the appropriateness of further surveys. If the CTS site assessment determines the project does not provide potential breeding habitat of suitable aestivation habitat within 1.24 mi of a potential breeding site then no further mitigation measures would be required. If, however, potential breeding and/or aestivation habitat is present within the proposed project footprint, the project could either assume CTS presence and implement Mitigation Measures NR-20 and NR-21, or conduct field surveys to determine whether or not CTS occur on the Study Area. Conducting site-specific surveys to demonstrate CTS absence generally requires 2 years of surveys.
- BIO-7 Provide Compensatory Habitat Mitigation. If CTS presence is assumed, or if protocol-level surveys document presence anywhere on the Study Area, mitigation for habitat loss in consultation with the USFWS and CDFG will be required. This compensation may be achieved through purchase of credits for the appropriate acreage of aestivation and dispersal habitat at an approved off-site mitigation bank or by acquiring, preserving, and managing suitable upland habitat in or adjacent to areas currently supporting CTS.
- BIO-8 Implement Avoidance and Minimization Measures. If CTS presence is assumed, or if protocol-level surveys document presence anywhere on the Study Area, the project shall implement the following avoidance and minimization measures. The project shall also consult with the USFWS and CDFG to determine if additional site-specific measures are required to protect CTS from take during construction activities.
1. The limits of work shall be flagged prior to the start of construction.
 2. Exclusion fencing shall be constructed around the entire footprint of the project area, immediately outside the flagged limits of work, to exclude CTS from construction areas.
 3. An on-site construction personnel education program shall be conducted by a qualified biologist to educate workers on CTS recognition, the potential for occurrence of CTS in the project area, measures to avoid take, and penalties for take. A protocol shall be developed and followed in the event that a CTS is encountered inside the exclusion fencing during project construction. This protocol shall include the following elements:
 - a. All work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease;
 - b. The foreman shall be immediately notified;

- c. The foreman shall immediately notify an appropriate project representative, who in turn shall immediately notify the USFWS and CDFG; and
 - d. A qualified biologist approved by the USFWS to handle the individual salamander shall be contacted to remove the individual to a safe location nearby.
4. During construction, dedicated construction personnel shall conduct daily checks of the exclusion fencing to ensure that it is functioning correctly (e.g., without any gaps through which CTS might enter the work area), and to maintain the fencing as needed. Prior to the start of work each day, these personnel shall also inspect trenches and pits that were left open overnight.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Red-Legged Frog

Impact 5.10-11 Individual projects accommodated by the Jobs Emphasis and PC Environmental Review Plan Alternatives within the 40 year buildout growth boundary could disturb California red-legged frog and result in the loss of suitable habitat. This impact is considered potentially significant.

There is potential habitat for California red-legged frog (CRLF) in Del Puerto Creek west of I-5. The quality of this habitat is low due the ephemeral flow of the creek and lack of vegetative cover present along the creek, and is further reduced by the presence of bullfrogs in Del Puerto Creek. However, due to the presence of suitable habitat and connectivity to occupied red-legged frog habitats via Del Puerto creek, the presence of red-legged frogs in the vicinity of Del Puerto Creek west of I-5 cannot be ruled out without surveys.

In addition, the San Joaquin River in the vicinity of potential bridge widening and/or construction provides suitable habitat for red legged frog and its presence cannot be ruled out without surveys.

Draft Policy Document Response

Implementation Measure

NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

BIO-9 Conduct pre-construction surveys for California red-legged frog. To assure that CRLF are not disturbed by construction activities, a qualified herpetologist shall conduct pre-

construction surveys for projects occurring within 1,000 ft of Del Puerto creek west of I-5 and within 1,000 feet of the San Joaquin River. The survey periods and schedule will be conducted in accordance with the revised guidance on site assessments and field surveys for the California red-legged frog (USFWS 2005).

- BIO-10 Provide Compensatory Habitat Mitigation. If CRLF presence is documented on the Study Area, mitigation for habitat loss in consultation with the USFWS will be required. This compensation may be achieved through purchase of credits for the appropriate acreage habitat at an approved off-site mitigation bank or by acquiring, preserving, and managing suitable habitat in areas currently supporting CRLF.
- BIO-11 Implement Avoidance and Minimization Measures. If CRLF are found to be present anywhere on the Study Area, the project shall consult with the USFWS to develop appropriate avoidance and minimization measures to protect CRLF from take during construction activities.
1. The limits of work shall be flagged prior to the start of construction.
 2. Exclusion fencing shall be constructed around the entire footprint of the project area, immediately outside the flagged limits of work, to exclude CRLF from construction areas.
 3. An on-site construction personnel education program shall be conducted by a qualified biologist to educate workers on CRLF recognition, the potential for occurrence of CRLF in the project area, measures to avoid take, and penalties for take. A protocol shall be developed and followed in the event that a CRLF is encountered inside the exclusion fencing during project construction. This protocol shall include the following elements:
 - i. All work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease;
 - ii. The foreman shall be immediately notified;
 - iii. The foreman shall immediately notify an appropriate project representative, who in turn shall immediately notify the USFWS; and
 - iv. A qualified biologist approved by the USFWS to handle the individual frogs shall be contacted to remove the individual to a safe location nearby.
 4. During construction, dedicated construction personnel shall conduct daily checks of the exclusion fencing to ensure that it is functioning correctly (e.g., without any gaps through which CRLF might enter the work area) and to maintain the fencing as needed. Prior to the start of work each day, these personnel shall also inspect trenches and pits that were left open overnight.
 5. Prior to commencement of work on the Study Area, but after construction of the exclusion fencing, a pre-construction survey shall be conducted by a qualified biologist in the work area adjacent to potential red-legged frog habitat. If any red-legged frogs are found within the work area, the USFWS shall be contacted, and if approved by the USFWS, the qualified biologist shall remove the individual to a safe location nearby.

Implementation of the above measures at the time of development shall reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Swainson's hawk

Impact 5.10-12 Individual projects accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40 year buildout growth boundaries could disturb nesting Swainson's Hawk and result in the loss of foraging habitat. This impact is considered potentially significant.

Swainson's hawk nests in areas such as riparian woodlands, roadside trees, trees along field borders, and the edges of remnant oak woodlands. Swainson's hawks are known to nest within the Study Area³. Suitable nesting and foraging habitat for Swainson's hawk exists in the Study Area, especially in areas adjacent to alfalfa fields in the eastern and southern portions of the Study Area. Nesting Swainson's hawks, therefore, are considered likely within the Patterson Study Area. Impacts resulting from future construction projects (noise, human activity) could result in disrupted foraging activities, incidental loss of fertile eggs or nestlings, or nest abandonment. CDFG recommends that the buffer zone be increased to 0.5 mi in nesting areas away from urban development⁴. These buffer zones may be adjusted as appropriate in consultation with a qualified ornithologist and CDFG.

The Study Area includes 4,533.4 acres of irrigated row crops, 1,89.8 acres of which are alfalfa, which may serve as foraging habitat for Swainson's hawks. Swainson's hawks may also forage in non-native annual grassland within this area. Loss of these habitats could represent a significant impact if active Swainson's hawk nests are present within 10 miles (the average maximum distance from nests that pairs are known to forage⁵ of the Study Area.

An active Swainson's hawk nest was observed in 2006 southeast of the intersection of Olive Avenue and North 1st Street⁶. This nest is within 5 miles of the entire Study Area. Additional nests have been documented east of the Study Area along the San Joaquin River riparian corridor as well as agricultural lands north and southeast of the Study Area⁷. These nests may continue to be active in the future.

Draft General Plan Policy Response

Implementation Measure

NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

BIO-12 Conduct pre-construction surveys for Swainson's Hawks. In order to assure that nesting Swainson's hawks will not be disturbed by construction in the project area, a qualified ornithologist shall conduct pre-construction surveys as described in the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley

³ CNDDDB 2009

⁴ CDFG 1994

⁵ CDFG 1994

⁶ H. T. Harvey & Associates 2006

⁷ CNDDDB 2009, H. T. Harvey & Associates 2006

of California⁸. Survey Period I occurs from 1 January to 20 March, Period II from 20 March to 5 April, Period III from 5 April to 20 April, Period IV from 21 April to 10 June (surveys not recommended during this period), and Period V from 10 June to 30 July. Three surveys shall be completed in at least each of the 2 survey periods immediately prior to a project's initiation but are recommended during periods II, III, and V. If a nest site is found, consultation with CDFG shall be required.

- BIO-13 Removal of nest trees. Nest trees along the proposed project shall not be removed unless avoidance measures are determined to be infeasible. If a nest tree must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from the CDFG. The Management Authorization shall specify the tree removal period, generally between 1 October and 1 February. If construction or other project-related activities that may cause nest abandonment or forced fledging are necessary within the specified buffer zone, monitoring of the nest site (funded by the applicant) by a qualified biologist shall be required to determine if the nest is abandoned. If the nest is abandoned, and if the nestlings are still alive, the applicant shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).
- BIO-14 Compensate for loss of foraging habitat. Loss of foraging habitat for Swainson's Hawks shall be mitigated by providing Habitat Management (HM) lands as described in the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California⁹ because the site is known foraging habitat for Swainson's Hawks. The final acreage of HM lands to be provided on site shall depend on the distance between the proposed project area and the nearest active nest site¹⁰, as determined by nest surveys conducted in the spring prior to project implementation. The acreage of HM lands provided shall be derived from the recommendations included in the 1994 CDFG staff report (Appendix D). The ratios of mitigation for loss of Swainson's hawk foraging habitat is 1:1 (mitigation: impact) for projects within 1 mi of an active nest, 0.75:1 for projects within 5 mi but greater than 1 mi of an active nest, 0.5:1 for projects within 10 mi but greater than 5 mi of an active nest.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

San Joaquin Kit Fox

Impact 5.10-13 Individual projects accommodated by the Jobs Emphasis and PC Environmental Review Plan Alternatives within the 40 year buildout growth boundary could result in the loss of habitat for, and potential take of, San Joaquin kit fox. This impact is considered potentially significant.

⁸ CDFG 1994, Appendix D

⁹ CDFG 1994, Appendix D

¹⁰ CDFG 1994

There are 3 CNDDDB (2009) records of San Joaquin kit fox (SJKF) within the Study Area and one additional record approximately 3 mi south of the Study Area. Suitable foraging and denning habitat for SJKF exists within the General Plan expansion area west of I-5. This includes approximately 415 acres of fragmented annual grassland habitat located between Sperry Avenue to the south and near Del Puerto Creek to the north, but excluding orchards bisecting these 2 areas.

The role and function of a habitat corridor linking SJKF core populations south of Santa Nella with potential populations north of this region is highly questionable based on biological considerations alone¹¹. Extensive sampling and anecdotal observations indicate that connectivity with northern populations may possibly adversely affect source populations to the south of Santa Nella¹². However, the current SJKF recovery plan¹³ calls for maintaining connectivity to northern range areas. The General Plan expansion area west of I-5 contains fragmented open grasslands that provide suitable but limited foraging and denning habitat for SJKF. Therefore, according to the recovery plan, the Study Area is considered an important habitat corridor linking SJKF populations and suitable habitat south of Patterson¹⁴ with suitable habitat north of the Study Area¹⁵.

Potential denning and foraging habitat east of I-5 is of low value for the SJKF and is expected to be used only infrequently, if at all. Reconnaissance surveys in 2009 and protocol-level kit fox surveys conducted in 2001 and 2002 provided no indication that kit foxes were using areas east of I-5 within the Patterson General Plan expansion area¹⁶.

Some potential impacts to kit foxes may occur within the Study Area near the Delta-Mendota Canal, particularly between the Delta-Mendota Canal and California Aqueduct. Kit foxes in other portions of their range use canals of this type on occasion. These linear features are potential travel corridors for kit foxes during dispersal or exploratory forays. Potential impacts to kit foxes are considered to be less than significant within areas east of the Delta-Mendota Canal.

Impacts as a result of future projects covered by the General Plan, including construction activities associated with future development projects, may contribute to the injury and mortality of or loss of habitat for SJKF.

Draft General Plan Policy Response

Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-15 Conduct focused surveys for San Joaquin kit fox. Protocol-level surveys for SJKF shall be performed for future projects covered by the General Plan occurring in the Area west of I-5 containing grassland habitat. The survey shall be conducted in accordance with the U.S. Fish

¹¹ Constable et al. 2009

¹² Smith et al. 2006, Clark et al. 2007, Constable et al. 2009

¹³ USFWS 1998

¹⁴ Ciervo-Panoche, Santa Nella

¹⁵ Contra Costa, Haight et al. 2004

¹⁶ H. T. Harvey & Associates 2002

and Wildlife Service San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999) or follow an approach coordinated with the USFWS or CDFG. An evaluation of the site that describes the project, its size, the habitats it would impact, known SJKF occurrences within 10 mi of the project, an evaluation of the Study Area's suitability as SJKF habitat, and an analysis of the project's adverse effects on SJKF shall be submitted to USFWS. If the evaluation determines that the project will not impact SJKF and the USFWS concurs, then mitigation measure 8-2 would not be required. Such a determination is unlikely given recent CNDDDB records in the area. If, however, it is judged on the basis of the evaluation that potential SJKF habitat is present within a proposed project footprint, that project could either assume SJKF presence and implement Mitigation Measures NR-29 and NR-30 or conduct field surveys to determine whether or not SJKF occur on the Study Area.

BIO-16 Preserve off-site habitat for San Joaquin kit fox. To mitigate potential permanent impacts to habitat from project construction, the project proponent shall acquire habitat occupied by SJKF. Conversion of these habitats for urban development shall be mitigated for in one of the following manner:

1. Fee title purchase and/or dedication of a permanent conservation easement of land in the higher quality kit fox habitat (under 1000 ft in elevation) west of I-5 within Stanislaus County at a ratio of 2:1 (2 acres protected for each acre developed). Lands shall be dedicated prior to grading activities on the property; or,
2. Payment of an in-lieu fee per developed acre, to be held by the County, the Center for Natural Lands Management, the California Wildlife Foundation, the CDFG, or other entity approved by the USFWS, for the ultimate purpose of establishing a permanent movement corridor in western Stanislaus County below 1000 ft elevation and west of I-5, pursuant to the existing recovery planning goals for kit fox in the County. Fees shall be paid prior to grading of the site. When these funds are ultimately applied for mitigation purposes, the actual cost of setting aside and protecting lands under this provision will be based on the prevailing market rate for mitigation lands at the time an individual project is proposed. Lands selected for conservation shall be approved by the USFWS.

BIO-17 Implement Avoidance and Minimization Measures. Future projects covered by the General Plan occurring west of the Delta Mendota canal will comply with the 1999 U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin kit fox Prior to or During Ground Disturbance. These recommendations include the following:

Pre-construction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities for any project activity likely to impact the SJKF. Pre-construction survey reports shall be provided to the USFWS within 5 days of completing surveys. If construction is phased, pre-construction surveys shall be conducted for each phase according to the timing and schedule stated above.

1. An employee education program shall be conducted.
2. Project-related vehicles shall observe a 20-mph speed limit in the project area, except on county roads and state and federal highways; this is particularly important at night when kit foxes are most active.
3. To the extent practicable, nighttime construction shall be minimized.
4. Off-road traffic outside of designated project areas shall be prohibited.
5. To prevent inadvertent entrapment of kit foxes or other animals during the construction phases of the projects, all excavated, steep-walled holes or trenches more than 2 ft deep shall be covered at the close of each working day by plywood or similar materials or

equipped with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.

6. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of a qualified biologist, the pipe may be moved once to remove it from the path of construction activity.
7. All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in a closed container and removed at least once a week from a construction or Study Area.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Southwestern Pond Turtles

Impact 5.10-14 Individual projects accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40 year buildout growth boundaries could result in the mortality or injury of, and loss of habitat for, southwestern pond turtles. This impact is considered significant.

The nearest CNDDDB records of southwestern pond turtle are located 5 miles east and 8 miles west of the Study Area. This species may be present in permanent or nearly permanent aquatic habitat within Del Puerto Creek and in the percolation/evaporation ponds at the wastewater treatment plant. There are approximately 58 acres of aquatic habitat within the Study Area which could serve as potential habitat.

Impacts as a result of approval of the proposed project, including construction activities associated with future development projects, may contribute to the injury and mortality of or loss of habitat for southwestern pond turtle. Future construction projects may contribute to the loss of this species through mechanical crushing; loss of nesting, breeding, or basking sites; and human trampling. Induced indirect impacts of future specific projects could contribute to a decline in water quality, temporary loss of upland nesting sites and foraging habitat, disruption of breeding activity, or disturbance of basking sites.

Draft General Plan Policy Response

Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-18 Conduct focused presence/absence surveys for southwestern pond turtle. A qualified biologist shall conduct focused surveys for southwestern pond turtle in the area of the proposed project crossings at Del Puerto Creek. Focused surveys shall consist of a minimum of 4 daytime surveys, to be completed between 1 April and 1 June. If southwestern pond turtles are detected in or adjacent to the proposed project, nesting surveys shall be conducted, as detailed in mitigation measure NR-32.
- BIO-19 Conduct focused surveys for southwestern pond turtle nesting. Focused surveys for evidence of southwestern pond turtle nesting shall be conducted by a qualified biologist if southwestern pond turtles are detected or assumed present in or adjacent to the proposed project and if suitable nesting habitat exists within 1,300 ft of occupied habitat in an area where project-related ground disturbance will occur. The qualified biologist shall make the determination of what constitutes suitable nesting habitat. Surveys shall entail searching for evidence of pond turtle nesting, including remnant eggshell fragments, which may be found on the ground following nest depredation.
- BIO-20 Monitoring and avoidance and minimization measures. A qualified biologist with demonstrated expertise with southwestern pond turtles shall monitor construction activities where pond turtles are present or assumed present. This person shall be approved by the CDFG prior to the onset of ground-disturbing activities. This biologist shall be referred to as the authorized biologist hereafter. The authorized biologist shall be present during all activities immediately adjacent to or within habitat that supports populations of southwestern pond turtles.

Prior to the onset of construction activities the project proponent shall provide all personnel who shall be present on work areas within or adjacent to the proposed project with the following information:

1. A detailed description of the southwestern pond turtle including color photographs
2. The protective measures being implemented to conserve the southwestern pond turtle and other species during construction activities associated with the proposed project
3. A point of contact if southwestern pond turtles are observed

If the installation of fencing is deemed necessary by the authorized biologist, one clearance survey for southwestern pond turtles shall be conducted at the time of the fence installation. Additionally, focused surveys as described under mitigation measure NR-32 should be conducted prior to the initiation of construction each day.

- BIO-21 Relocation of nests and individuals from construction zones. To mitigate potential impacts and permanent habitat losses resulting from project construction, the authorized biologist shall coordinate with CDFG to identify adjacent suitable habitat and relocate pond turtles and/or their nests.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Burrowing Owl

Impact 5.10-15 Individual projects accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could disturb nesting burrowing owls and result in the loss of occupied burrowing owl habitat. This impact is considered significant.

Burrowing owl, a CDFG Species of Special Concern, has been observed within the Study Area, and there are 2 CNDDDB records within the Patterson Study Area. Suitable habitat for burrowing owl, including annual grassland, is widespread throughout the western edge of the area west of I-5 and in the margins of irrigated crops in the remainder of the Study Area.

Impacts as a result of approval of the future projects covered by any of the Equal-Weight Alternatives, including associated construction activities, may contribute to the injury and mortality of or loss of habitat for burrowing owl. Disturbance of habitat during the breeding season could also result in the displacement of breeding birds and the abandonment of active nests. Ground disturbance from future construction projects could contribute to the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment.

Draft General Plan Policy Response

Implementation Measure

- NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

- BIO-22 Implement CDFG protocol for burrowing owls. In conformance with federal and State regulations regarding the protection of raptors, a habitat assessment in accordance with California Burrowing Owl Consortium's (CBOC) 1993 Burrowing Owl Survey Protocol and Mitigation Guidelines (Appendix F) shall be completed prior to the start of construction. Burrowing owl habitat within the proposed project and within a 500-ft buffer zone shall be assessed ("Assessment Area"). If the habitat assessment concludes that the Assessment Area

lacks suitable burrowing owl habitat, no additional action is required. However, if suitable habitat is located on the Assessment Area, all ground squirrel colonies shall be mapped at an appropriate scale, and the mitigation measures covered in the CDFG protocol for burrowing owls shall be implemented:

1. In conformance with federal and state regulations regarding the protection of raptors, a pre-construction survey for burrowing owls, in conformance with CDFG guidelines, shall be completed no more than 30 days prior to the start of construction within suitable habitat at the Study Area(s) and buffer zone(s). Three additional protocol-level surveys shall also be completed per CDFG guidelines prior to construction.
2. Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either the birds have not begun egg-laying and incubation or that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction.
3. A 250-ft buffer, within which no new activity will be permissible, shall be maintained between project activities and nesting burrowing owls during the nesting season. This protected area shall remain in effect until 31 August or at the CDFG's discretion, and based upon monitoring evidence, until the young owls are foraging independently.
4. If accidental take (disturbance, injury, or death of owls) occurs, the CDFG shall be notified immediately.

BIO-23 Compensate for loss of burrowing owl habitat. If surveys determine that burrowing owls occupy the site and avoiding development of occupied areas is not feasible, then habitat compensation on off-site mitigation lands shall be implemented based on the CBOC (1993) guidelines. HM lands comprising existing burrowing owl foraging and breeding habitat shall be acquired and preserved. An area of 6.5 acres (the amount of land found to be necessary to sustain a pair or individual owl) shall be secured for each pair of owls, or individual in the case of an odd number of birds. As part of an agreement with the CDFG, the project applicant shall secure the performance of its mitigation duties by providing the CDFG with security in the form of funds that would:

1. Allow for the acquisition and/or preservation of 6.5 acres of HM lands;
2. Provide initial protection and enhancement activities on the HM lands, potentially including, but not limited to, such measures as fencing, trash clean-up, artificial burrow creation, grazing or mowing, and any habitat restoration deemed necessary by CDFG;
3. Establish an endowment for the long-term management of the HM lands, and;
4. Reimburse the CDFG for reasonable expenses incurred as a result of the approval and implementation of this agreement.

Implementation of the above measures at the time of development will reduce potential impacts to a **less than significant** level.

Additional Mitigation

None required.

Nesting Avian

Impact 5.10-16 Individual projects accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could disturb nesting avian “species of special concern”. This impact is considered potentially significant.

The loggerhead shrike has been identified as nesting within the Patterson Study Area, and there is marginal nesting habitat for tricolored blackbirds as well. While individual project implementation would not substantially reduce habitat available for these species, restrict their range, or cause their regional populations to drop below self-sustaining levels, the direct or indirect loss of nests through physical removal, nest abandonment, or reproductive suppression of these regionally rare species would constitute a significant impact without mitigation if large numbers of nests or unique isolated breeding populations are affected.

Draft General Plan Policy Response

Implementation Measure

NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

BIO-24 Avoidance. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from January through August.

BIO-25 To the extent construction cannot be scheduled to avoid the nesting season, conduct pre-construction surveys and monitoring for breeding birds. A qualified ornithologist shall conduct pre-construction surveys for nesting birds if construction and removal activities are scheduled to occur during the breeding season. Surveys shall be conducted in areas within 500 ft of construction activities. If breeding birds with active nests are found, a biological monitor shall establish a 500-ft buffer around the nest, and no activities will be allowed within the buffer until the young have fledged from the nest, the nest fails or an ornithologist in cooperation with CDFG determines avoidance is possible by other means. The biological monitor shall conduct regular monitoring of the nest. If an active raptor nest is found close enough to the construction area to be disturbed by these activities, the ornithologist, in consultation with the CDFG, shall determine the extent of a construction-free buffer zone to be established around the nest.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Impacts to Raptors

Impact 5.10-17 Individual projects accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could disturb raptors. This impact is considered potentially significant.

Northern harrier, a species of “special concern,” and white-tailed kite, a state “fully protected” species, are known or have the potential to nest in the vicinity of the Study Area. While individual project implementation would not substantially reduce habitat available for these species, restrict their range, or cause their regional populations to drop below self-sustaining levels, the direct or indirect loss of nests through physical removal, nest abandonment, or reproductive suppression of these regionally rare species would constitute a significant impact if large numbers of nests or unique isolated breeding populations are affected without mitigation. As a state “fully protected” species, the white-tailed kite is protected from take of any kind. Additionally, all raptors (i.e., eagles, hawks, and owls) and their nests are protected under both federal and state law. Impacts as a result of approval of the proposed project, including construction activities associated with future development projects, may contribute to the injury and mortality of or loss of habitat for nesting raptors. Disturbance of habitat during the breeding season could also result in the displacement of breeding raptors and the abandonment of active nests.

Draft General Plan Policy Response

Implementation Measure

NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

BIO-26 Avoid nesting season for raptors. To the extent practicable, construction shall be scheduled to avoid the nesting season for raptor species, which extends from 1 January through 31 August.

BIO-27 If it is not possible to schedule construction between August and January, then pre-construction surveys for nesting raptors shall be conducted by a qualified ornithologist or wildlife biologist to ensure that no raptor nests will be disturbed during Project implementation. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of demolition/construction activities during the early part of the breeding season (January through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the qualified person shall inspect all trees and suitable structures in, and immediately adjacent to, the impact areas for raptor nests. If an active raptor nest is found close enough to the construction area to be disturbed by these activities, the ornithologist, in consultation with the CDFG, shall determine the extent of a construction-free buffer zone to be established around the nest.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Special Status Plants

Impact 5.10-18 Individual projects accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives could result in impacts to special-status plants. This impact is considered potentially significant.

Showy madia is a state rare species that may occur within the California annual grassland in west of Interstate 5. The nearest records of the species are from approximately 8 miles northwest of the Study Area¹⁷. Delta button-celery is a state endangered species, although reportedly extirpated from San Joaquin County, may still occur in vernal mesic clay depressions within the Study Area. The nearest records of the species are from approximately 1 mile southeast and 1 mile north of the Study Area¹⁸. Several CNPS listed species also have potential to occur within the Study Area. List 1B species are rare throughout their range and include big tarplant, round-leaved filaree, Lemmon's jewelflower, diamond-petaled California poppy, and red-flowered lotus. List 4 species include California androsace, Oakland star-tulip, small-flowered morning glory, gypsum-loving larkspur, stinkbells, hogwallow starfish, serpentine leptosiphon, and delta woolly-marbles. List 4 species are of limited distribution in California, and may be significant locally.

Construction activities associated with future development projects may reduce the number or restrict the range of a rare or endangered plant. Reconnaissance surveys conducted in 2009 generally occurred outside of the optimal flowering period. In addition, access to suitable habitat on private property was not provided.

Draft General Plan Policy Response

Implementation Measure

NR-13 Within twelve months of adoption of the General Plan, the City shall prepare and adopt an ordinance that will require the relevant provisions of the items listed in Appendix NR as conditions of approval for projects with the potential to adversely impact biological resources.

Requirements of Appendix NR

BIO-28 Conduct Protocol-Level Surveys for Annual and Herbaceous Perennial Species Listed Above.

¹⁷ CNDDDB 2009

¹⁸ CNDDDB 2009

- BIO-29 Conduct focused protocol-level surveys in areas where suitable habitat is present. Before any ground disturbance has occurred, focused, protocol-level surveys for the above-named species shall be conducted by a qualified plant ecologist at all areas of ground disturbance. CNPS standards for conducting protocol-level surveys for special-status plants indicate that surveys must be accomplished in a floristic manner. Generally, floristic, protocol-level surveys require between 3 to 4 visits by a qualified plant ecologist during the growing season and blooming period for the species to identify all potential associate species and be reasonably certain the presence of an ephemeral, annual plant population may be detected. These surveys must be accomplished during a year of at least normal rainfall (timing and amount) to be reasonably certain the plant species are not remaining dormant in the seed bank (or not producing above-ground tissue, in the case of herbaceous perennials) due to unfavorable climactic conditions. Any populations found during surveys shall be fully described, mapped, and a CNDDDB Field Survey Form or written equivalent shall be prepared for any special-status populations found to occur within the specific project footprint.

If none of the special-status plant species are located within the project footprint after completion of protocol-level field surveys conducted during a year of average rainfall amount and timing, then no further mitigation measures are necessary. If populations of the plants are found then the remaining mitigation measures NR-43 through NR-46 must be implemented.

- BIO-30 Avoid direct and indirect impacts to any populations of special-status plant species found during surveys through project re-design. In consultation with a plant ecologist, the project should be redesigned, constructed, and operated in such a way as to avoid direct and indirect impacts to the special-status plant population, if practicable. If complete avoidance of direct and indirect impacts to individuals is infeasible, the project proponent shall implement mitigation measure 13-1.e below. Populations of special-status plant species located within temporary construction areas shall be fenced or flagged for avoidance prior to construction.

- BIO-31 Minimize indirect effects. Reduce indirect impacts to the species by the creation of a buffer zone during and after construction. Prior to site grading, any populations should be identified by a qualified plant ecologist. A buffer zone should be established around these areas and they should be of sufficient size to eliminate potential disturbance to the plants from human activity and any other potential sources of disturbance. Temporary fences should be constructed between any populations and project activities.

The size of the buffer depends on the proposed use of the immediately adjacent lands and includes consideration of the plant's ecological requirements (i.e., sunlight, moisture, shade tolerance, edaphic physical and chemical characteristics) that are identified by a qualified plant ecologist based on the growth requirements of the species. Public access to the area should be restricted after the construction phase of the project as well.

- BIO-32 Restore impacted habitat on-site. To mitigate impacts to habitat capable of supporting the above-named species, prior to any ground disturbance, a qualified restoration ecologist shall conduct a feasibility analysis to identify restoration opportunities within impacted areas. The feasibility analysis shall include background literature review, consultation with responsible agencies familiar with restoration of this habitat type, and an initial investigation of existing site conditions such as soils, hydrology, topography, and aspect. If restoration is deemed feasible, habitat shall be restored 1:1 (habitat restored: habitat impacted). A restoration and monitoring plan (RMP) shall be developed for the project and shall include the description of impacted habitat functions, values, and acreage; mitigation ratio; mitigation goal; location of

mitigation area and existing condition; site manipulation/ preparation required; planting plan; maintenance plan; monitoring plan and detailed performance and final success criteria. Should restoration not be feasible, or should the restoration sites not meet performance criteria detailed within the time allotted within the RMP, Implementation Measure NR-46 is required.

- BIO-33 Preserve off-site habitat/management of existing populations. In the case that project re-design to completely avoid all direct and indirect impacts to populations located during surveys is not feasible, existing offsite habitat that is not already part of the public lands shall be preserved in perpetuity at a 1:1 mitigation ratio (one acre preserved for each acre impacted) to mitigate impacts to habitat capable of supporting special-status species. The preserved habitat shall be of similar habitat quality to the impacted areas in terms of soil features, extent of disturbance, vegetation structure, and dominant species composition, as determined by a qualified plant ecologist.

The project proponent shall work with CDFG to identify appropriate nearby mitigation lands and ensure their permanent protection through an appropriate CDFG-approved mechanism, such as a conservation easement or fee title purchase. A conservation easement could be held by CDFG or an approved land management entity and shall be recorded within a time frame agreed upon by CDFG.

Alternatively, if currently held private lands supporting the same vegetation types are not available within relatively close proximity to the impact locations, the project proponent shall seek a suitable funding mechanism involving an endowment or similar trust to fund activities on public lands that currently support known populations of the affected species that are under threat from factors such as noxious weed infestations or vandalism. The goal is to fund the long-term management of these species through implementation of specific management measures including such items as additional fencing, public education, grazing management, and so forth to the satisfaction of the public land managers.

Implementation of the above measures at the time of development will reduce potential impacts to a less than significant level.

Additional Mitigation

None required.

Impacts to Downstream Water Quality

Impact 5.10-19 Future projects accommodated by the Equal-Weight Alternatives within the 20-year and 40 year buildout growth boundaries have the potential to degrade water quality within the irrigation laterals, within Del Puerto Creek in the area west of Interstate 5, in the San Joaquin River, and at the terminus of the laterals and within Salado Creek as a result of pollution, sedimentation, and litter stemming from site construction. These factors could result in significant indirect effects to downstream biological resources. This impact is considered potentially significant.

Impacts related to water quality are discussed in Chapter 5.13 of this EIR under Hydrology and Water Quality. As discussed in Chapter 5.13, future projects, would have to comply with State and federal water

quality regulations, including California's General Construction Stormwater Permit, which requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which are designed to manage stormwater quality degradation through best management practices during and after construction. These practices may include temporary drainage ditches, culverts, berms, and/or straw bales that confine stormwater and prevent it from carrying sedimentation off of the Study Area. Compliance with the SWPPP and the measures above will reduce the potential for indirect impacts to biological resources to less than significant levels.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

Past and foreseeable future actions within the Patterson area include, but are not limited to, grazing, agriculture, off-road vehicle use, and the construction of housing, commercial, industrial, and infrastructure projects. A number of projects are in the planning stages or will be implemented in the near future within the City of Patterson, related to housing developments and the continuing expansion of the Keystone West Business Park adjacent to I-5 and the Westpark project at the Crows landing Airfield.

Cumulative Impacts

Cumulative Loss of Habitat for Sensitive Species

Impact 5.10-20 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development will adversely impact habitats for sensitive biological resources. This impact is considered cumulatively considerable for both the 20-year and 40 year buildout growth boundaries.

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Foreseeable future development activities in the vicinity of the Study Area would result in considerable disturbance to special-status wildlife and plants, their habitats, and other sensitive biological resources. However, the incremental effect of the proposed project, when combined with the effects created by other past and reasonably foreseeable projects, would be cumulatively considerable even though the project applicant will obtain regulatory approvals and implement the mitigation measures previously described to address direct and indirect effects of the project.

The draft policies, implementation measures and additional mitigation measures recommended above for Project Impacts will help mitigate regional impacts relating to habitat loss for plant and animal species. However, cumulative impacts will remain **cumulatively considerable and significant and unavoidable**.

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Persons Contacted

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5.11 AGRICULTURAL RESOURCES

Introduction

This section describes the existing agricultural resources, policies and regulations that pertain to the Study Area, as well as potential impacts that could occur as a result of future development under the General Plan Update. The analysis also describes the extent to which the application of proposed General Plan policies and programs would mitigate potential impacts. Where appropriate, additional policies and implementation measures are recommended.

Setting

Agriculture is the predominant land use in the Study Area outside the city limits. Nuts, fruit trees and row crops are the primary commodities, with vegetable crops also playing an important role.

Agricultural Climate Characteristics

The climate of Stanislaus County is characterized by hot, dry summers and cool, moist winters. The winters are generally too cold for the commercial production of citrus fruits. However, the winter generally provides the necessary chilling period for deciduous fruit like peaches and apricots. Frost can also affect the types of crops that may be grown. Certain areas of Stanislaus County are considered thermal or warm and safe for crops such as almonds. West of Patterson and Newman and east of Oakdale, the temperatures are similar to the lowest portions of the valley floor except that the winter lows are not quite as severe and citrus fruits can be grown commercially. Many different field and vegetable crops can be grown here, as well as around Modesto and Turlock.

The average precipitation in the County is about 12 inches per year. Most of the rainfall occurs from December through March, with levels often around two inches per month. The summers are normally very dry with almost no precipitation from June to September. The dry summers and the light winter rains, in combination with the warm, temperate weather, produce conditions suitable for growing crops like almonds, apricots, oranges, tomatoes, alfalfa, grapes, and many others.

Agricultural Products and Values

Agriculture continues to be the leading industry in Stanislaus County because of its flat land with good to excellent soil quality, a favorable climate, and the availability of water. In addition, the region has low-cost power and a good transportation system. Approximately 907,656 acres were in agricultural production the county during 2008, which was an increase of about 27,000 acres from the previous year (About 48% of all agricultural lands (441,000 acres) countywide are rangeland.¹

In 2008, Stanislaus County generated \$2.47 billion dollars from its agricultural products, ranking sixth among the nation's 3,075 counties and sixth among California's 58 counties¹. Dairy products and almonds are currently the leading commodities in Stanislaus County. The total value of agricultural products in the County has doubled since 2002. Although milk is the leading product (and has been historically), this commodity suffered a significant loss in value in 2008 because of an overall drop in price along with rising feed costs. (Although the total of milk produced in 2008 was up by a little less than 1% in 2008

¹ Stanislaus County Agricultural Crop Report, 2008

from the previous year, the total value was down by 8%, or about \$56 million.) Table 5.11-1 shows the top ten agricultural products in the County by value.

Table 5.11-1: Leading Agricultural Products and Values in Stanislaus County		
Rank (2008)	Product	Value
1	Milk	\$689,285,000
2	Almonds	\$424,200,000
3	Chickens	\$229,887,000
4	Cattle, Calves	\$141,033,000
5	Silage	\$128,327,000
6	Walnuts	\$106,622,000
7	Deciduous Fruits and Nuts (nursery)	\$68,888,000
8	Hay, Alfalfa	\$67,830,000
9	Peaches	\$64,888,000
10	Tomatoes	\$59,830,000
TOTAL	All Products *	\$2,473,843,000 *

Source: Stanislaus County Agricultural Crop Report, 2008

* Includes all products Countywide, not just the top ten products shown in table

Soils

The Study Area lies in Stanislaus County, west of the San Joaquin River. Stanislaus County occupies a portion of the northern San Joaquin Valley, extending from the foothills of the Sierra Nevada to the ridge of the Diablo Range. Stanislaus County can be geologically divided into what is commonly referred to as the eastside (approximately two-thirds of the county) and the westside (approximately one-third of the county). This division is based on the two predominant types of soils. The San Joaquin River forms a natural divider between these two types of soils. All of the soils on the west side are of recent alluviums: loams, clay loams, and clays washed out from the coastal range of mountains. These soils are different from eastside soils because the parent material is fine-grained sandstones and shales. As a result, these soils tend to be fine textured as opposed to the coarser soils of the eastside.

Farmland Classifications and Rating Systems

The United States Department of Agriculture Storie Index evaluates the general suitability of soils for agriculture, based on four factors that represent the inherent characteristics and qualities of the soils. The California Revised Storie Index rates soil on a scale from 1 to 6, with 1 being the best. The Storie Index does not consider physical or economic factors, such as irrigation, that might determine the desirability of growing certain plants in a given area. There are a variety of soil types within the Study Area, as shown in Table 5.11-2 and Figure 5.11-1. Soils with the highest capability (Grade 1) comprise 4,449 acres, or about 35% of the Study Area. Grade 2 soils, which are also highly productive, comprise an additional 2,906 acres. In all, Grades 1 or 2 soils comprise 57% of the 12,768-acre Study Area.

Figure 5.11-1: Soil Types in Study Area

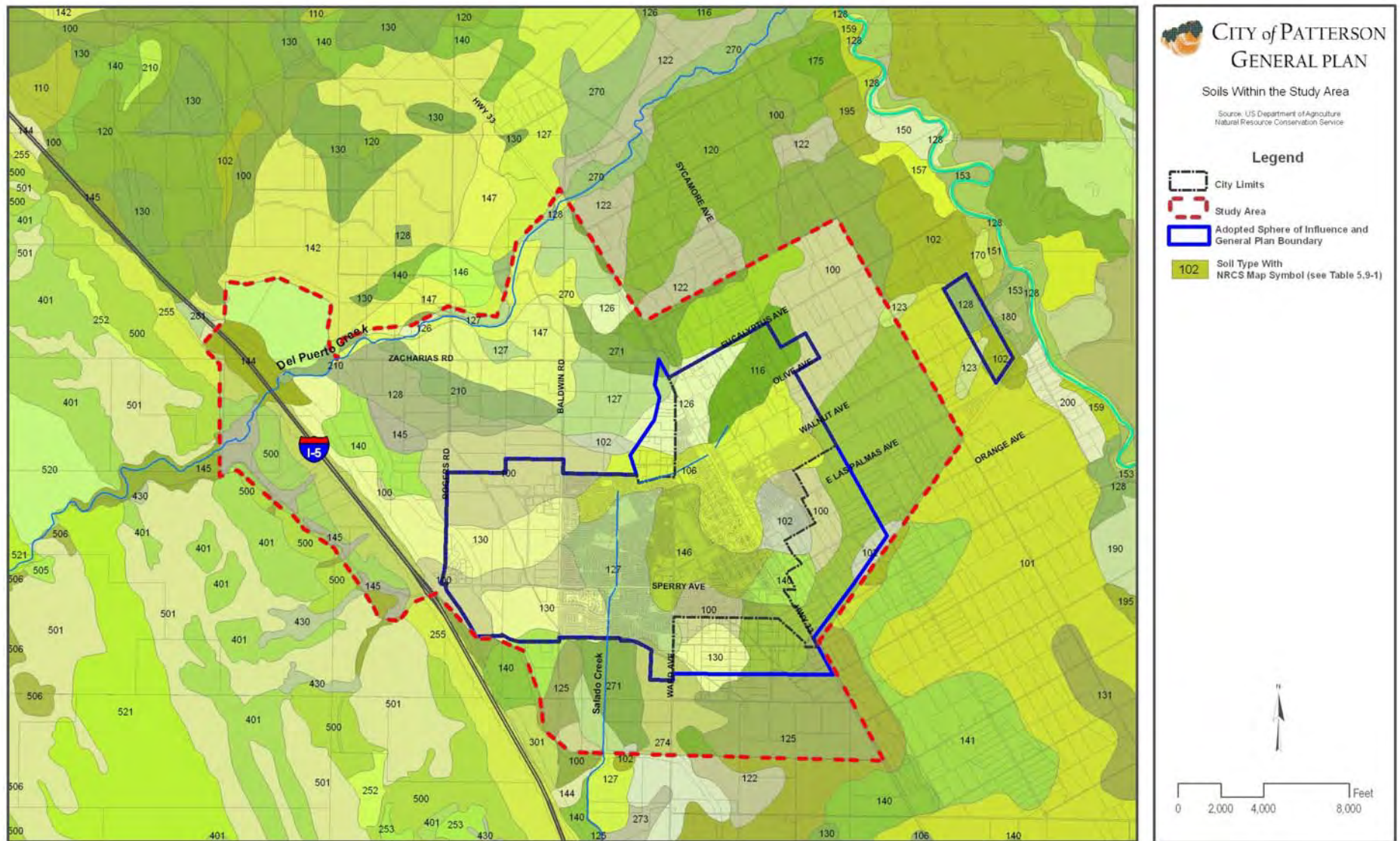


Table 5.11-2: Agricultural Soil Capabilities Within the General Plan Study Area

Soil Type	NRCS Map Symbol ¹	NRCS Land Capability Classification		Storie Index Grade	Acres	Percent of Study Area
		Irrigated	Non-Irrigated			
Capay Clay	100	2	4	3	1,970	15.43
Capay Clay wet	101	2	4	4	1,359	10.64
Capay Clay, loamy substratum	102	2	4	3	271	2.12
Capay Clay, 0- 2% slope, rarely flooded	106	2	4	4	805	6.30
El Soylyo silty clay loam	116	2	4	1	293	2.29
Vernalis-Zacharias complex, 0-2% slopes	120	1	4	1	304	2.38
Vernalis loam, 0 - 2% slope	122	1	4	1	204	1.60
Vernalis clay loam, wet	123	2	4	1	12	0.09
Vernalis clay loam, 0 - 2% slope	125	1	4	1	794	6.22
Vernalis Zacharias complex, 0-2% rarely flooded	126	1	4	2	387	3.03
Vernalis loam, rarely flooded	127	1	4	1	1,173	9.19
Stomar clay loam	130	2	4	2	1,095	8.58
Zacharias clay loam, 0-2% slope	140	1	4	1	470	3.68
Zacharias gravelly clay loam	142	2	4	2	327	2.56
Zacharias gravelly clay loam 2-5% slope	144	2	4	2	194	1.52
Zacharias clay loam, 2 - 5% slope	145	2	4	1	278	2.18
Zacharias clay loam, 0 - 2% slopes rarely flooded	146	1	4	2	404	3.16
Zacharias gravelly clay loam, rarely flooded, 0-2%	147	2	4	2	499	3.91
Cortina gravelly sandy loam	210	4	4	3	283	2.22
Calla-Carbona complex	255	6	-	4	419	3.28
Elsalado loam	270	1	4	1	240	1.88
Elsalado loam, rarely flooded	271	1	4	1	389	3.05
Elsalado loam, 0-2% slopes	274	2	4	1	292	2.29
Wisflat-Arburura-San Timoteo complex, 20-50% slopes	500	6	-	5	306	2.40
Total:					12,768	100.00

Source: US Department Agriculture, Natural Resource Conservation Service, Web Soil Survey, 2010

Notes for Table 5.11-2

1. See Figure 5.11-1 for locations of soils.
2. “Land Capability Classification” is a system devised by the NRCS to indicate agricultural capabilities, on a scale of 1 to 8, with 1 being highest. Typically, Classes 1 and 2 are considered prime, because there are few limitations on the types of crops that can be grown. Note that under this system, many soils are only considered prime if irrigated.
3. Storie Index Grades (for EIR purposes, Grade 1 is considered prime-see Standards of Significance):
 - Grade 1: Well suited to intensively cultivated crops that are climatically adapted to the region.
 - Grade 2: Good agricultural soils, although they are not so desirable as soils in grade 1 because of a less permeable subsoil, deep cemented layers (e.g., duripans), a gravelly or moderately fine textured surface layer, moderate or strong slopes, restricted drainage, low available water capacity, lower soil fertility, or a slight or moderate hazard of flooding.
 - Grade 3: Only fairly well suited to agriculture because of moderate soil depth; moderate to steep slopes, restricted permeability in the subsoil; a clayey, sandy, or gravelly surface layer; somewhat restricted drainage; acidity; low fertility; or a hazard of flooding.
 - Grade 4: Poorly suited to agriculture. They are more limited in their agricultural potential than the soils in grade 3 because of restrictions, such as a shallower depth; steeper slopes; poorer drainage; a less permeable subsoil; a gravelly, sandy, or clayey surface layer; channeled or hummocky microrelief; acidity.
 - Grade 5: Very poorly suited to agriculture and are seldom cultivated. They are more commonly used as pasture, rangeland, or woodland.
 - Grade 6: Not suited to agriculture because of very severe or extreme limitations. They are better suited to limited use as rangeland, protective habitat, woodland, or watershed.

In 2002, a total of 260,730 acres in Stanislaus County were classified as prime farmland. With the exception of urban areas within the City of Patterson, the United States Department of Agriculture Natural Resources Conservation Service (NRCS) has classified the majority of the land between Interstate 5 and the San Joaquin River in the Study Area as prime farmland, as shown on Figure 5.11-2 and Table 5.11-3. Prime farmland is defined in the United States Code as “*land that has the best combination of physical and chemical characteristics for producing ... agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion....*” Prime farmland does not include land already in, or committed to, urban development. Because nearly all undeveloped land that surrounds the developed areas of Patterson is classified and mapped as Prime Farmland, any expansion of the City’s boundaries will result in the conversion of Prime Farmland.

The Natural Resources Conservation Service (NRCS) is the primary source of information concerning the suitability of soils for agricultural use. The NRCS has developed a "Land Capability Classification System" that organizes soils into eight categories rated one through eight. Arable lands are organized into Classes 1 through 4. Non-arable lands are those unsuited for long-term cultivation. Classes 5 through 8 contain non-arable lands. Table 5.11-3 shows that 95% of all soils in the Study Area are considered Class 1 or 2 when irrigated. However, without irrigation, none is considered better than Class 4. For this reason, water availability is crucial to agricultural capabilities within this area.

The California Division of Land Resource Protection uses another soils classification system: the Important Farmland Inventory (IFI), which is the source data for the State’s Farmland Mapping and Monitoring Program. This program provides a source of information for state and local agencies concerned with agricultural land conversion. The IFI identifies five farmland categories: prime farmland, farmland of statewide importance, farmland of local importance, unique farmland, and grazing lands. The Prime Farmland designation is based on such factors as the availability of a reliable water supply, the area’s temperature range, depth of the water table, soil permeability, and other considerations. Generally, soils receiving a Class 1 or 2 rating under the NRCS Land Capability Classification System (assuming that irrigation is feasible) are designated as IFI Prime Farmland.

Each of these farmland types is defined below.

(1) **Prime Farmland** has 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.

(2) **Farmland of Statewide Importance** is similar to 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.

(3) **Unique Farmland** consists of lesser quality soils used for the production of the state’s leading agricultural crops. This land is usually irrigated, but may include nonirrigated 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.

(4) **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.

(5) **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. The

minimum mapping unit is 40 acres.

Three other non-agricultural categories are also included in the IFI, primarily to show where urban uses or other agriculturally non-productive uses are located.

Soil mapping for the Important Farmland Inventory has been completed throughout the state, and the results for the Patterson area are shown in Figure 5.11-2 and Table 5.11-3.

Table 5.11-3: Important Farmlands Within the General Plan Study Area		
Important Farmlands Category	Acres	Percent of Study Area
Prime	8,514	66.7%
Farmland of Statewide Importance	285	2.2%
Farmland of Local Importance	0	0%
Unique Farmland	345	2.7%
Grazing Land	666	5.2%
Urban/Developed	2,519	19.7%
Rural Residential	156	1.2%
Other	284	2.2%
TOTAL	12,768	100%
Source: GIS analysis derived from NRCS Important Farmlands Map, 2006.		

Figure 5.11-2: Important Farmlands within the Study Area



Regulatory Setting

Federal Regulations

Farmland Protection Policy Act

The Natural Resources Conservation Service (NRCS), a federal agency within the U.S. Department of Agriculture, is the agency primarily responsible for implementation of the Farmland Protection Policy Act (FPPA). The purpose of the FPPA is to minimize federal programs' contribution to the conversion of farmland to nonagricultural uses by ensuring that federal programs are administered in a manner that is compatible with state, local, and private programs designed to protect farmland. NRCS provides technical assistance to federal agencies, state and local governments, tribes, or nonprofit organizations that desire to develop farmland protection programs and policies.

NRCS summarizes FPPA implementation in an annual report to Congress. The FPPA also established the Farmland Protection Program and the Land Evaluation and Site Assessment (LESA), which are discussed below.

Farmland Protection Program

The NRCS administers the Farmland Protection Program, a voluntary program aimed at keeping productive farmland in agricultural uses. Under the Farmland Protection Program, NRCS provides matching funds to state, local or tribal government entities and nonprofit organizations with existing farmland protection programs to purchase conservation easements. The goal of the program is to protect between 170,000 and 340,000 acres of farmland per year (Natural Resources Conservation Service, 2002). Participating landowners agree not to convert the land to nonagricultural use and retain all rights to use the property for agriculture. A minimum of 30 years is required for conservation easements and priority is given to applications with perpetual easements. NRCS provides up to 50 percent of the fair market value of the easement being conserved (Natural Resources Conservation Service, 2002).

To qualify for a conservation easement, farmland must meet several criteria. The land must be:

- Prime, Unique, or other productive soil, as defined by NRCS based on factors such as water moisture regimes, available water capacity, developed irrigation water supply, soil temperature range, acid-alkali balance, water table, soil sodium content, potential for flooding, erodibility, permeability rate, rock fragment content, and soil rooting depth;
- Included in a pending offer to be managed by a nonprofit organization, state, tribal, or local farmland protection program;
- Privately owned;
- Placed under a conservation plan;
- Large enough to sustain agricultural production;
- Accessible to markets for the crop that the land produces; and
- Surrounded by parcels of land that can support long-term agricultural production.

Land Evaluation and Site Assessment

Under the California Environmental Quality Act (CEQA), lead agencies may refer to the LESA model in their environmental analysis but are not required to do so. The LESA system ranks lands for suitability and inclusion in the Farmland Protection Program. LESA evaluates several factors, including soil potential for agricultural use, location, market access, and adjacent land use. These factors are used to numerically rank the suitability of parcels based on local resource evaluation and site considerations

(Natural Resources Conservation Service, 2002). The LESA system has spawned many variations, including the California LESA model, described below.

State Regulations

California Environmental Quality Act Definition of Agricultural Lands

Public Resources Code Section 21060.1 defines “agricultural land” as follows:

Agricultural land means prime farmland, farmland of statewide importance or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California.

This EIR utilizes this definition for evaluating impacts associated with the loss of agricultural lands as a result of the proposed General Plan Update.

California Department of Conservation

The Department of Conservation administers and supports a number of programs, including the Williamson Act, the California Farmland Conservancy Program, the Williamson Act Easement Exchange Program, and the Farmland Mapping and Monitoring Program (FMMP). These programs are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. The Department of Conservation is responsible for approving Williamson Act Easement Exchange Program agreements.

Important Farmland Inventory System and Farmland Mapping and Monitoring Program

As discussed above, the Important Farmland Inventory System initiated in 1975 by the U.S. Soil Conservation Service (now NRCS) classifies land based on ten soil and climatic characteristics. The Department of Conservation started a similar system of mapping and monitoring for California in 1980, known as the FMMP.

Under CEQA, the lead agency is required to evaluate agricultural resources in environmental assessments at least in part based on the FMMP. The state’s system was designed to document how much agricultural land in California was being converted to nonagricultural land or transferred into Williamson Act contracts. The definitions of Important Farmland types are provided in the Farmland Mapping and Monitoring Program discussion in the Existing Setting section above.

California Land Evaluation and Site Assessment Model

The California LESA model was developed in 1997 based on the federal LESA system. It can be used to rank the relative importance of farmland and the potential significance of its conversion on a site-by-site basis. The California LESA model considers the following factors: land capability, Storie index, water availability (drought and non-drought conditions), land uses within one-quarter mile, and “protected resource lands” (e.g., Williamson Act lands) surrounding the property. A score can be derived and used to determine if the conversion of a property would be significant under CEQA.

The Williamson Act (Land Conservation Act)

The California Land Conservation Act of 1965 (Williamson Act, Government Code, Section 51200 et seq.) encourages the conservation of agricultural lands by providing a property tax incentive to owners who restrict land uses to agriculture and compatible uses. It is a voluntary program administered through local governments, which are responsible for contracting with landowners. Properties subject to Williamson Act contracts must remain in agricultural use for the duration of the contract, a minimum of 10 years. The contracts are self-renewing unless the property owner or a city or county has filed a Notice of Non-renewal. Filing a Notice of Non-renewal initiates an approximately nine-year period, after which the contract expires.

A Williamson Act contract may also be terminated through contract cancellation. A local government may only approve a request for immediate cancellation of a contract by making specific findings under state law of either consistency with the purposes of the Williamson Act or as a cancellation in the public interest (Cal. Government Code, Section 51282(a)). The California Department of Conservation must be notified of a petition for cancellation. The Department may submit comments advising the local government on the required findings regarding the proposed cancellation and the local government must consider these comments before acting on the proposed cancellation (Cal. Government Code, Section 51284.1). According to the State CEQA Guidelines, projects resulting in cancellation of a Williamson Act contract for any parcel of 100 acres or more should be considered as being of statewide, regional or area-wide significance. (Only one Williamson Act parcel in the Study Area is over 100 acres in size, and the contract was set to expire in 2009.) Under Government Code Section 51243.5 where a Williamson Act contract was properly protested by the City upon its execution and such protest was upheld by LAFCO, the City may exercise its option not to succeed to the rights, duties and powers of a Williamson Act contract upon annexation of the property by the City. If the City exercises its option to not succeed to a contract, the City must record a certificate of contract termination with the county recorder at the same time as LAFCO files the certificate of completion under Section 57203. Parcels in the Study Area under Williamson Act contract, totaling 5,216 acres, are shown in Figure 5.11-3.

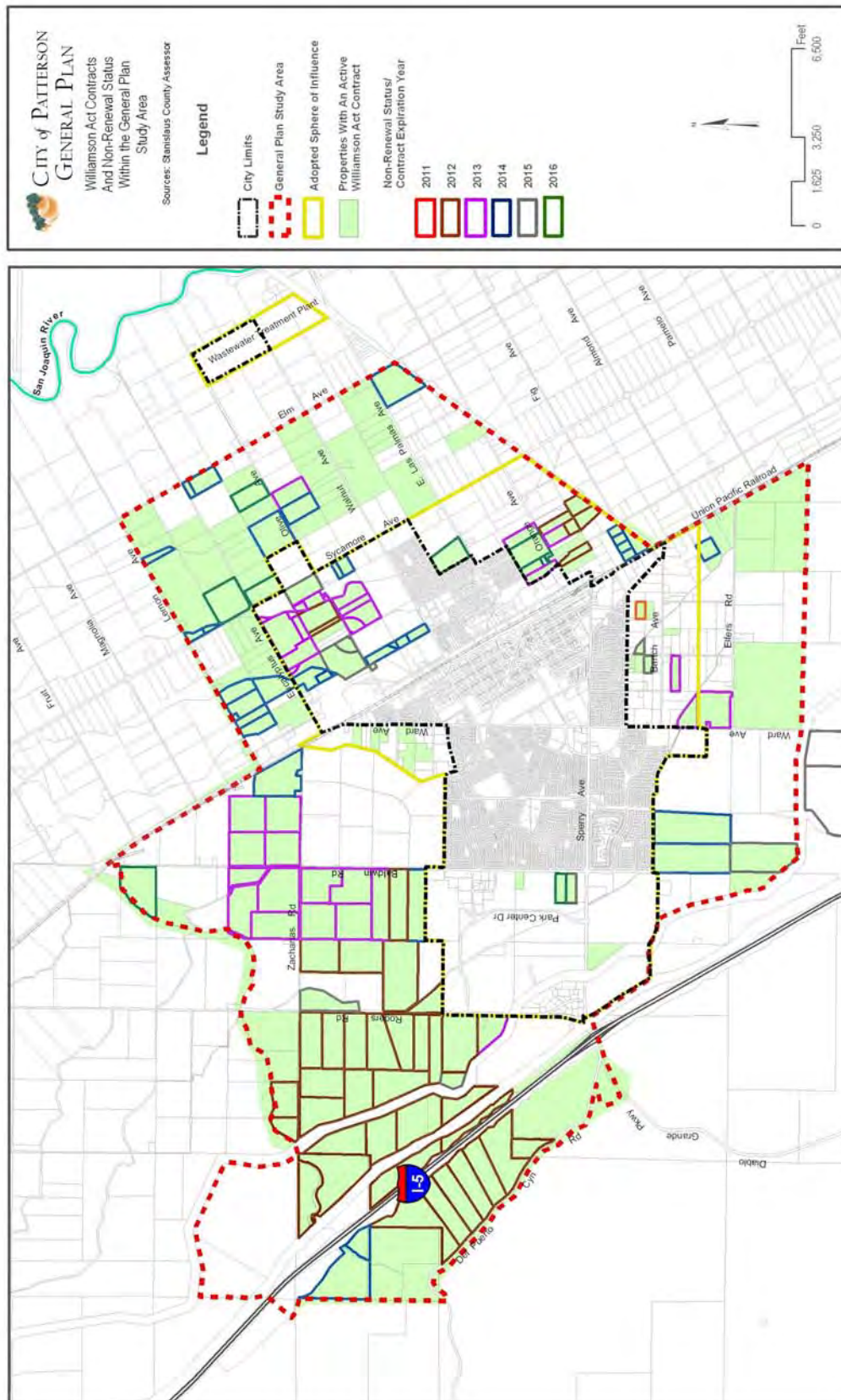
Figure 5.11-3 also shows the parcels within the Study Area that have filed a Notice of Non-Renewal, which take effect nine years from the date of filing. Of the 264 parcels currently under contract, 150 (totaling 3,209 acres) have filed such notices. In all, 57% of all lands currently under Williamson Act contract have filed for non-renewal, which will take effect, depending on the parcel, from 2011 to 2016. A large percentage of these parcels are located north and west of the current City limits, extending west of Interstate 5, and generally south of Zacharias Road. Many of these parcels are slated to lose their Williamson Act status in 2012.

As of January, 2010 there were 47 active Williamson Act Contracts within the City limits covering a total of 476.85 acres. Of these, 42 have filed a Notice of Non-Renewal. This fact provides evidence that once within city boundaries, or in a city's Sphere of Influence, there is a strong disincentive to continue farming.

Table 5.11-4: Summary of Williamson Act Status Within the Study Area, Sphere of Influence and City Limits

	Total Number of Active LCA Contracts	Total Acreage Under LCA Contract	Filed for Non-Renewal	Acreage Filed for Non-Renewal
Study Area	264	5,216.61	150	3,209.63
Adopted Sphere of Influence	85	835.06	63	674.94
City Limits	47	476.85	42	441.43
Source: Stanislaus County Assessor data, 2007				

Figure 5.11-3: Parcels within the Study Area Under Williamson Act Contract with Non-Renewal Status



Farmland Security Zones

Farmland Security Zones (FSZs) were established by the legislature in 1998. FSZs are meant to protect participating Important Farmland from development pressure. An FSZ must be located within an agricultural preserve (area designated as eligible for a Williamson Act contract) and designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The agricultural and open space lands enrolled in the program are protected for a minimum of a 20-year term under an FSZ and are offered an even greater property tax reduction than land under a Williamson Act contract. Land protected in an FSZ cannot be annexed by a city or county government or school district, which would result in cancellation of a Williamson Act contract (California Department of Conservation, 2001). Non-renewal and cancellation procedures are similar to those for Williamson Act contracts.

Local Regulations

City of Patterson Right to Farm Ordinance

The City of Patterson adopted a right-to-farm ordinance in 1992 (Chapter 6.48 of Title 6 of the Patterson Municipal Code). This ordinance seeks to protect and encourage agricultural operations in the city, as long as proper and accepted customs and standards are met. The ordinance states that residents of property in or near agricultural districts should be prepared to accept the inconveniences and discomfort associated with normal farm activities. The ordinance states that no agricultural operation conducted in a manner consistent with proper and accepted customs and standards shall be or become a nuisance due to any changed condition after the operation has been in operation for more than one year, if it was not a nuisance at the time it began.

Stanislaus County General Plan

The County General Plan provides the following policies related to agricultural resources:

- Policy 1.9 The County shall continue to protect agricultural resources by limiting the circumstances under which agricultural operations may be deemed to constitute a nuisance.
- Policy 1.10 The County shall protect agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.
- Policy 1.22 The County shall encourage regional coordination of planning and development activities for the entire Central Valley.
- Policy 2.1 The County shall continue to provide property tax relief to agricultural landowners by participating in the Williamson Act.
- Policy 2.2 The County shall support reasonable measures to strengthen the Williamson Act, making it a more effective tool for the protection of agricultural land.
- Policy 2.3 The County shall ensure all lands enrolled in the Williamson Act are devoted to agricultural and compatible uses supportive of the long-term conservation of agricultural land.
- Policy 2.4 To reduce development pressures on agricultural lands, higher density development and in-filling shall be encouraged.

- Policy 2.5 To the greatest extent possible, development shall be directed away from the County's most productive agricultural areas.
- Policy 2.6 Agricultural lands restricted to agricultural use shall not be assessed to pay for infrastructure needed to accommodate urban development.
- Policy 2.8 In order to further the conservation of agricultural land, the subdivision of agricultural lands shall not result in the creation of parcels for 'residential purposes'. Any residential development on agriculturally zoned land shall be incidental and accessory to the agricultural use of the land.
- Policy 2.11 The County recognizes the desire of cities and unincorporated communities to grow and prosper and shall not oppose reasonable requests consistent with city and county agreements to expand, provided the resulting growth minimizes impacts to adjacent agricultural land.
- Policy 2.13 In recognition that unincorporated land within spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities ultimately will be urbanized, the County shall cooperate with cities and unincorporated communities in managing development in sphere of influence areas.
- Policy 2.14 When the County determines that the proposed conversion of agricultural land to non-agricultural uses could have a significant effect on the environment, the County shall fully evaluate on a project specific basis the direct and indirect effects, as well as the cumulative effects of the conversion.
- Policy 2.15 In order to mitigate the conversion of agricultural land resulting from a discretionary project requiring a General Plan or Community Plan amendment from 'Agriculture' to a residential land use designation, the County shall require the replacement of agricultural land at a 1:1 ratio with agricultural land of equal quality located in Stanislaus County.
- Policy 2.17 The County shall work cooperatively with the nine cities within the County and to encourage them to adopt agricultural conservation policies or ordinances which are consistent with County policies or ordinances in order to undertake an integrated, comprehensive Countywide approach to farmland conservation. It is the ultimate goal of the County to have all nine cities participate in or adopt an agricultural mitigation ordinance that is the same as or substantially similar.

Stanislaus Local Agency Formation Commission (LAFCo)

As part of its review of annexations and Sphere of Influence amendments, LAFCo considers soil quality and the availability of irrigation water in its assessment of the impacts of annexation proposals on agricultural land. LAFCo policies direct that development of land for uses other than open space shall be guided away from existing prime agricultural land, unless that action would not promote the planned, orderly, efficient development of an area.

Standards of Significance

This agricultural resources analysis evaluates the consistency of the Equal-Weight General Plan alternatives according to the following thresholds, which are based on State CEQA Guidelines:

An agricultural impact is considered to be significant if implementation of the project would:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use;
2. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural uses; or
3. Conflict with existing zoning for agricultural use or a Williamson Act contract.

The EIR analysis considers soils prime if they meet either State or federal definitions of prime agricultural land or prime farmland, respectively. The State defines prime agricultural land as follows (Government Code § 51201):

- (c) “Prime agricultural land” means any of the following:
- (1) All land that qualifies for rating as Class 1 or Class 2 in the Natural Resource Conservation Service land use capability classification.
 - (2) Land that qualifies for rating of Grade 1 in the Storie Index Rating.
 - (3) Land that supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United State Department of Agriculture.

As defined in the Code of Federal Regulations (CFR) Title 7 (Agriculture) § 657.5(a) (1), prime farmland is defined as follows:

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses.

Soils are designated as prime farmland by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), in accordance with 7 CFR § 657.5. As a matter of federal law, NRCS farmland classifications of “prime farmland if irrigated” are also considered prime.

Based on the State and federal definitions of prime agricultural land and prime farmland outlined above, for the purposes of this EIR, prime soils are defined as those with a Land Capability Class of 1 or 2, a California Revised Storie Index of Grade 1 (Excellent), or an NRCS farmland classification of “prime farmland if irrigated.”

Project Impacts and Mitigation Measures

Methodology

The agricultural analysis is based on information gathered from the Stanislaus County General Plan, the California Department of Conservation Farmland Conversion Report, the California Department of Conservation Important Farmlands Map, the Soil Survey of Stanislaus County, California, and the Stanislaus County Agricultural Commissioner’s Report. This analysis addresses direct impacts and losses

of farmland as well as indirect impacts on agricultural uses (e.g., growth pressure to convert farmlands, conflicts between agricultural operations and urban land uses) as a result of the development of land use designations proposed under each of the Equal-Weight General Plan alternatives as well as any roadway improvements and implementation of policy provisions.

An effort was made to use the California LESA model to determine the relative importance of farmland and the potential significance of its conversion. However, it was determined that the LESA model is not designed for projects the size and scale of the General Plan. While the identification of acreage of Important Farmland within the Study Area was available, determining the water availability, land uses within a quarter mile, and “protected resource lands” surrounding the Study Area was impractical due to the size of the project. Therefore, using the LESA model to determine the impact of implementation of the General Plan would have on farmland is considered inappropriate and was rejected as a possible impact determination source.

Instead, the analysis is based on a more programmatic approach, identifying generalized impacts related to the conversion of prime agricultural lands and potential land use incompatibilities that may result from future development. To the extent feasible, the analysis identifies the physical locations of such impacts (based on the proposed land use pattern), and the degree to which proposed General Plan policies and programs would address such impacts, and provide a regulatory framework to reduce such impacts to a less than significant level.

Permanent Conversion of Prime Farmland

Impact 5.11-1 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result in the permanent conversion of prime farmland to urban land uses within the 20-year and 40 year buildout growth boundaries. This impact is considered potentially significant.

Future development under any of the land use scenarios envisioned would permanently convert prime farmlands to non-agricultural uses. Table 5.11-5 summarizes the projected Important Farmlands converted to urban uses upon development in both a 20- and 40 year buildout horizon, for each of the land use scenarios.

Table 5.11-5: Important Farmlands Potentially Converted to Urban Use, by Equal-Weight Alternative

Important Farmlands Category	PC Review Plan		Compact Plan		Jobs Plan		Study Area
	After 20 Years	After 40 Years	After 20 Years	After 40 Years	After 20 Years	After 40 Years	
Prime	6,162	8,372	3,319	4,421	4,413	7,118	8,514
Statewide Importance	251	276	211	238	280	285	285
Local Importance	0	0	0	0	0	0	0
Unique	335	345	269	310	335	344	345
Grazing	54	666	45	54	54	571	666
Other	38	284	25	39	25	48	284
Rural Residential	120	156	73	94	75	121	156
Total Land Converted	6,960	10,099	3,942	5,157	5,182	8,489	-
Existing Urban Use	2,519	2,519	2,519	2,519	2,519	2,519	2,519
Remaining Study Area (unconverted)	3,289	149	6,307	5,092	5,067	1,760	-
Total Study Area:	12,768	12,768	12,768	12,768	12,768	12,768	12,768

Source: GIS analysis derived from NRCS Important Farmlands Map, 2006.

Compact Development Alternative

This alternative envisions development in areas beyond what is envisioned in the existing General Plan, notably in the following areas:

- A roughly 4-square mile area north and west of the existing City limit, south of Zacharias Road, and east of the I-5 freeway as far as Ward Avenue, would be converted from existing agricultural uses to urbanized development. The western portion of this area would become a light industrial extension of the West Patterson Business Park, as well as highway commercial uses along I-5, while the eastern portion would be low density residential;
- The roughly 0.5-square mile area south of the City limit and north of Elfers Road, as far west as the Delta-Mendota Canal, is designated for residential development in the 40 year buildout planning horizon. The area currently supports a mix of agricultural and rural residential uses. This differs from the existing General Plan, which does not envision development in this area west of Ward Avenue.

As with the 1992 General Plan, the areas designated for future residential development do not extend beyond Sycamore Avenue to the east. There would also be no development west of Interstate 5. This alternative also envisions a slightly different mix of land uses within areas already considered for urbanization under the existing General Plan.

Most of the expansion area considered in this alternative is currently irrigated farmland, and considered to be prime. The conversion of such lands to urban uses would be a significant and unavoidable impact.

The extent of this impact would be greater than would be expected under the 1992 General Plan, but less than expected under the other Equal-Weight Alternatives, since the extent of urban expansion would be less than for those development alternatives.

An estimated 4,421 acres of prime farmlands would be converted to urban uses under this scenario within 40 years, with about 62% of that conversion happening in the first 20 years (Table 5.11-5). In all, about 52% of all prime farmland within the Study Area would be converted to urban uses. The total prime farmland converted would be roughly twice that expected with development under the existing General Plan. In all, about 5,157 acres of farmland of all classifications would be converted to urban uses by development through the 40 year buildout horizon.

Jobs Emphasis Alternative

This alternative envisions development in areas beyond what is envisioned in the existing General Plan, notably in the following areas:

- The expansion area north and west of the City described under the Compact Development Alternative would be extended north of Zacharias Road, including lands bounded by Del Puerto Creek, and between the two canals. Residential development would surround the high school site between Highway 33 and Rogers Road, and the light industrial uses would occur west of Rogers Road as far north as Del Puerto Creek. The area bounded by the two canals north of Del Puerto Creek would convert existing agriculture to highway commercial uses.
- The existing agricultural area west of I-5 is shown with a 'Mixed Use' designation, which would accommodate housing and commercial development.
- As with the Compact Development Alternative, the roughly 0.5-square mile area south of the City limit and north of Elfers Road, as far west as the Delta-Mendota Canal, is designated for residential development in the 40 year buildout planning horizon. This differs from the existing General Plan, which does not envision development in this area west of Ward Avenue.
- Unlike the Compact Development Alternative or the existing General Plan, the area south of Elfers Road is designated Estate Residential with a cluster subdivision requirement in the 40 year buildout planning horizon.
- The 40 year buildout planning horizon envisions residential development extending beyond the existing City limit east of Sycamore Avenue (roughly halfway to Elm Avenue) and north of Eucalyptus Avenue (halfway to Lemon Avenue).

Most of the expansion area considered in this alternative is currently irrigated farmland, and considered to be prime. The conversion of such lands to urban uses would be a significant and unavoidable impact. The extent of this impact would be greater than would be expected under the existing General Plan or the Compact Development Alternative, since it envisions a greater extent of expansion into prime farmlands than either of those options. At the same time, impacts would be less than expected under the Planning Commission Environmental Review alternative, since the extent of urban expansion would be less.

An estimated 7,118 acres of prime farmlands would be converted to urban uses under this scenario within 40 years, with about 75% of that conversion happening in the first 20 years (Table 5.11-5). In all, about 83% of all prime farmland within the Study Area would be converted to urban uses. The total prime farmland converted would be a little over three times that expected with development under the existing General Plan. In all, about 8,489 acres of farmlands of all classifications would be converted to urban uses by development through the 40 year buildout horizon.

Planning Commission Environmental Review Alternative

The Planning Commission Environmental Review alternative includes potential development in areas beyond the existing General Plan boundaries or those of any of the other alternatives. It does this by extending urban development north of Zacharias Road to Del Puerto Creek, and eastward to Elm Avenue. Like the Jobs Emphasis Alternative, it would include development west of Interstate 5, and south of Elfers Road. Unlike the Jobs Emphasis Alternative, it would limit development in the area between the canals north of Del Puerto Creek to the area where a future interchange at Zacharias Road could be constructed.

This alternative envisions development in areas beyond what is envisioned in the existing General Plan, notably in the following areas:

- The expansion area north and west of the City described under the Compact Development Alternative would be extended north of Zacharias Road all the way to Del Puerto Creek, eastward to Highway 33.
- Light industrial uses would be north of Zacharias Road, while residential uses would be to the south, as far as the existing City limits.
- The existing agricultural area west of I-5 is shown with a 'Mixed Use' designation, which would accommodate housing and commercial development.
- As with the Compact Development Alternative, the roughly 0.5-square mile area south of the City limit and north of Elfers Road, as far west as the Delta-Mendota Canal, is designated for residential development in the 40 year buildout planning horizon. This differs from the existing General Plan, which does not envision development in this area west of Ward Avenue.
- Unlike the Compact Development Alternative or the existing General Plan, the area south of Elfers Road is designated Estate Residential with a cluster subdivision requirement in the 40 year buildout planning horizon.
- The 20-year planning horizon envisions residential development extending beyond the existing City limit east of Sycamore Avenue (roughly halfway to Elm Avenue). The 40 year buildout horizon would extend residential uses all the way to Elm Avenue, and north of Eucalyptus Avenue (halfway to Lemon Avenue).
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as residential.

As with the other scenarios, most of the expansion area considered in this alternative is currently irrigated farmland, and considered to be prime. The conversion of such lands to urban uses would be a significant and unavoidable impact. The extent of this impact would be greater than would be expected under the existing General Plan or any of the other alternatives, since it envisions a greater extent of expansion into prime farmlands than either of those options. The only exception to this trend is that it would not convert some of the prime farmland north of Zacharias Road between the canals to the same extent that would occur under the Jobs Emphasis Alternative.

An estimated 8,372 acres of prime farmlands would be converted to urban uses under this scenario within 40 years, with about 74% of that conversion happening in the first 20 years (Table 5.11-5). In all, about 98% of all prime farmland within the Study Area would be converted to urban uses. The total prime farmland converted would be nearly four times that expected with development under the existing General Plan. In all, about 10,099 acres of farmlands of all classifications would be converted to urban uses by development through the 40 year buildout horizon, leaving only 149 acres within the Study Area unconverted to urban uses.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact to prime agricultural lands, including the following:

Policies

- NR-2.1 Agricultural land preservation.** Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.

- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.

- NR-2.3 Greenbelt.** The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.

- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.

- NR-2.5 Regional farmland preservation.** The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.

- NR-2.6 Financial incentives.** The City shall support tax and economic incentives, at both the local and state levels, to enhance the economic competitiveness of agricultural exports.

- NR-2.7 Markets.** The City shall allow, encourage, and support local activities that strengthen the viability of agricultural markets, including farmers' markets, the on-site sale of produce, and special events that promote local agricultural products.

- NR-2.8 Community gardens.** The City shall allow and encourage urban agriculture in the form of community gardens as an important recreational, educational, landscaping, and community-nurturing resource, and an important source of fresh food in urbanized areas.

- NR-2.9 Williamson Act.** The City shall allow cancellation of Williamson Act contracts only if the City Council finds that cancellation is consistent with State law.

- NR-2.10 Right-to-farm.** The City shall continue to apply its right-to-farm ordinance.

- NR-2.11 Soil conservation.** The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.

Implementation Measures

NR-C The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program will address at least the following:

1. The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
2. Criteria for assessing the suitability of agricultural lands to be permanently protected.
3. Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other permanent farmland conservation mechanism.

NR-F The City shall investigate a mechanism for funding the acquisition and management of lands for mitigation land bank for impacts to biological and/or agricultural resources.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to the permanent conversion of productive agricultural lands. Nevertheless, implementation of any of the Equal-Weight alternatives would result in the permanent loss of productive agricultural land. Therefore, this impact is considered **significant and unavoidable**.

Additional Mitigation

No additional feasible programmatic mitigation measures are available that would effectively reduce impacts beyond implementation of the policies included in the draft General Plan.

Permanent Loss of Important Farmland from Road Construction

Impact 5.11-2 The widening of roadways outside the Study Area would result in the permanent loss of Important Farmland within the 20-year and 40 year buildout growth boundaries for each Equal-Weight Alternative. This impact is considered **potentially significant**.

The preliminary Circulation Plan identifies a number of roadway improvements that would result in the permanent conversion of productive agricultural land, as summarized in Table 5.11-6. The permanent loss of productive farmland would range from 113.3 acres (if the RTP alignment for the South County Corridor is chosen) to 122.6 (if the alternate alignment is chosen).

**Table 5.11-6: Potential Loss of Important Farmland From
Roadway Improvements Outside the Study Area
(acres)**

Roadway Improvements ¹	Description	Total Important Farmland Acreage Potentially Lost	Important Farmland Categories		
			Prime	Farmland of Statewide Importance	Unclassified
South County Corridor – RTP Alignment	From Elm Avenue to east of bridge	40.0	37.32	--	2.68
South County Corridor – Alternative Alignment	Eucalyptus Avenue to E. Las Palmas via Jennings Road	49.33	40.1	9.23	0
Southern By-Pass	E. Las Palmas to Elfers Road	53.33	50.12	0	3.21
Zacharias Road/I-5 Interchange	New interchange with ramps	20.0	20.0	0	0
Total:		162.6	147.5	9.23	5.89

Source: GIS analysis derived from NRCS Important Farmlands Map, 2006.

Notes:

1. See Preliminary Circulation Diagram, Figure 3.0-9.

Almost all of the land surrounding the City is classified as Important farmland by the State. Accordingly, there are no feasible alternative alignments which would avoid these resources. Although the roadway improvements will be conducted within existing right-of-way wherever possible, portions of each roadway improvement will be constructed outside of existing rights-of-way which may result in the conversion of Important Farmland as summarized in Table 5.11-6.

Draft General Plan Policy Response

Policies and implementation measures recommended by the draft Policy Document for Project Impacts would apply to the conversion of agricultural land for roadway improvements. Since the net result after application of the recommended policies and programs is a permanent loss of prime farmland this impact is considered **significant and unavoidable**.

Permanent Loss of Important Farmland – Regional Park Development

Impact 5.11-3 Construction of a regional park in the vicinity of the San Joaquin River would result in the permanent loss of Important Farmland. This impact is considered potentially significant.

Each of the Equal-Weight Alternatives identifies a site for a regional park in the vicinity of the San Joaquin River. Although a specific parcel (or parcels) has not been chosen for this facility, all of the

properties near the River are classified as Important farmland by the State (see Figure 5.11-2). Assuming a regional park is about 50 acres in size, any location for a park in this area would result in the permanent conversion of about 50 acres of Prime farmland.

Draft General Plan Policy Response

Policies and implementation measures recommended by the draft Policy Document for Project Impacts would apply to the conversion of agricultural land for a regional park. Since the net result after application of the recommended policies and programs is a permanent loss of Important Farmland this impact is considered **significant and unavoidable**.

Table 5.11-6: Potential Loss of Important Farmland From Roadway Improvements Outside the Study Area (acres)					
Roadway Improvements ¹	Description	Total Important Farmland Acreage Potentially Lost	Important Farmland Categories		
			Prime	Farmland of Statewide Importance	Unclassified
South County Corridor – RTP Alignment	From Elm Avenue to east of bridge	40.0	37.32	--	2.68
South County Corridor – Alternative Alignment	Eucalyptus Avenue to E. Las Palmas via Jennings Road	49.33	40.1	9.23	0
Southern By-Pass	E. Las Palmas to Elfers Road	53.33	50.12	0	3.21
Zacharias Road/I-5 Interchange	New interchange with ramps	20.0	20.0	0	0
Total:		162.6	147.5	9.23	5.89
Source: GIS analysis derived from NRCS Important Farmlands Map, 2006.					
Notes:					
2. See Preliminary Circulation Diagram, Figure 3.0-9.					

Almost all of the land surrounding the City is classified as Important farmland by the State. Accordingly, there are no feasible alternative alignments which would avoid these resources. Although the roadway improvements will be conducted within existing right-of-way wherever possible, portions of each roadway improvement will be constructed outside of existing rights-of-way which may result in the conversion of Important Farmland as summarized in Table 5.11-6.

Draft General Plan Policy Response

Policies and implementation measures recommended by the draft Policy Document for Project Impacts would apply to the conversion of agricultural land for roadway improvements. Since the net result after application of the recommended policies and programs is a permanent loss of prime farmland this impact is considered **significant and unavoidable**.

Conflicts between Urban Land Uses and Ongoing Agricultural Operations

Impact 5.11-4 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would create conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40 year buildout growth boundaries. This impact is considered potentially significant.

Future development under any of the Equal-Weight Alternatives would place residences and businesses in close proximity to ongoing agricultural operations, potentially burdening local agricultural operations. The dust, noise, odors, chemicals, aircraft and other machinery, and hours of operation associated with agricultural operations may be perceived as a nuisance to residents and merchants. This may give rise to complaints and lead to an increase in public support for conversion of surrounding agricultural lands. Developing urban land uses at the edge of agricultural land uses may also increase the potential for trespass on agricultural land, as well as crop pilfering, crop damage, and potential personal injury liability associated with trespass.

Other indirect impacts to agriculture from nearby urban uses can affect the long-term viability of such operations. Increased regulations and liability insurance to protect the farmer from adjacent urban uses cost time and money. Some farmers sensitive to nearby public uses voluntarily limit their hours of operation and do not intensively use the portions of their property closest to urban uses, in effect establishing informal buffer zones on their own property. This has the effect of lowering the crop yield, and therefore the long-term economic viability, of the agricultural operation. Over time, this may provide an incentive for the property owners of adjacent lands under Williamson Act contract to file a Notice of Non-Renewal.

Specific locations associated with each scenario that could experience conflicts between urban development and existing agricultural operations are as follows:

Compact Development Alternative

- Residential expansion north of the city, to Zacharias Road;
- Light industrial expansion north to Zacharias Road;
- Development of the high school site, north of Zacharias Road;
- Residential expansion east of the City, as it extends toward Sycamore Avenue on the east and Eucalyptus Avenue on the north (including development in the Villages of Patterson);
- Residential expansion to the south of the City, toward Elfers Road; and
- Expansion of the West Patterson Business Park toward existing agricultural uses, toward Sperry Avenue and the Delta-Mendota Canal.

Jobs Emphasis Alternative

- Residential expansion north of the city, to Zacharias Road;
- Light industrial expansion north to Zacharias Road;
- Development of the high school site north of Zacharias Road, until such time residential development surrounds the site;
- Residential expansion east of the City, as it extends beyond Sycamore Avenue on the east and Eucalyptus Avenue on the north (including development in the Villages of Patterson);
- Residential expansion to the south of the City, toward Elfers Road;

- Mixed use development west of I-5, which may conflict with ongoing adjacent rangeland operations; and
- Expansion of the West Patterson Business Park toward existing agricultural uses, toward Sperry Avenue and the Delta-Mendota Canal.

Planning Commission Environmental Review Alternative

- Residential expansion north of the city, to Zacharias Road;
- Light industrial expansion north to Zacharias Road;
- Development of the high school site north of Zacharias Road, until such time residential development surrounds the site;
- Residential expansion east of the City, as it extends toward Sycamore Avenue on the east and Eucalyptus Avenue on the north (including development in the Villages of Patterson);
- Residential expansion to the south of the City, toward Elfers Road;
- Mixed use development west of I-5, which may conflict with ongoing adjacent rangeland operations; and
- Expansion of the West Patterson Business Park toward existing agricultural uses, toward Sperry Avenue and the Delta-Mendota Canal.

It should be noted that roadways can act as buffers to some extent, and thus urban/agricultural boundaries such as Zacharias Road, Elm Avenue, Elfers Road and Eucalyptus Avenue will provide some degree of mitigation under the different scenarios.

The Compact Development Alternative is the most effective in using roadways as buffers, since development would be bounded by major roadways on all sides of the city. The existing General Plan would be nearly as good, except for likely direct conflicts north of the city, south of Zacharias Road. However, in the case of the Compact Development Alternative, the proposed high school site would not be buffered from existing agricultural uses.

The PC Environmental Review Alternative would also be effective in using roadways as buffers, with only the southern boundary south of Elfers Road subject to direct agricultural conflicts. The Jobs Emphasis scenario would likely result in the most conflicts, as the urban edge would typically directly abut agriculture, except where bounded by a creek or canal.

Creeks and canals could also act as agricultural buffers. In the case of the Jobs Emphasis and PC Environmental Review Alternatives, development would extend as far north as Del Puerto Creek. This feature would also act as a natural buffer between agriculture and urban uses. In the case of the PC Environmental Review Alternative, the extent of the potential conflict to the north of the city would be slightly reduced upon long-term buildout compared to the other scenarios. This is because light industrial uses, not residential development, would form the boundary with agricultural uses, and be further buffered by Del Puerto Creek and Highway 33. Nevertheless, potential conflicts would exist as the area develops, and transitions from agriculture to more urban uses.

The northern and eastern edges of the Villages of Patterson project site are proposed to have soundwalls to buffer the transition between the proposed residences and schools and the agricultural operations to the north and east. Setbacks and landscaping would also buffer the perimeter of the Villages of Patterson area (Villages of Patterson Development Plan Project DEIR, 2006).

Both Stanislaus County and the City of Patterson have implemented right-to-farm ordinances. These ordinances establish a policy that agricultural operations, conducted according to accepted customs and

standards, are not nuisances. Under the ordinances, purchasers of property in the City or County must sign a disclosure statement notifying the purchaser of the potential inconvenience and discomfort associated with agricultural operations (specifically including aircraft) and of the County's and City's policies supporting the right to farm. Under the County and City's "Right to Farm" policies, impacts from customary agricultural operations on adjacent land are considered normal and acceptable conditions of rural living.

Application of the right-to-farm ordinances would reduce complaints by residents by advising purchasers of property of the inherent potential problems associated with agricultural operations, preparing purchasers to accept these conditions. They would also reduce the demand for local enforcement measures against farmers, establishing a presumption that impacts from customary agricultural operations are not nuisances, for the purposes of enforcement of local health and safety codes.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize agricultural land use conflicts, including the following:

Policies

- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.
- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.
- NR-2.10 Right-to-farm.** The City shall continue to apply its right-to-farm ordinance.

Additional Mitigation

The following additional mitigation measure shall be implemented on a project-by-project basis, as appropriate.

- 5.11-2(a) Buffering Techniques.** As residential or school development occurs adjacent to agricultural uses, such development shall implement one or more of the following buffering techniques in its design:
- Roadways, creeks or canals shall be used as buffers where feasible;
 - Where incompatible uses directly abut, fences shall be installed on the non-agricultural use, which shall be designed to limit the drift of pesticides or other sprays, and shall discourage climbing and graffiti to the extent possible;
 - If additional non-residential development is anticipated in an area that is currently in agricultural use, fencing at the current interface of conflict shall be removed if requested by the current property owner on which the fence is

located. The cost for the fence removal must be borne by the developer of the land being converted from agriculture to urban uses.

The recommended policies listed above apply to each Equal-Weight alternative and will help minimize agricultural land use conflicts. However, the conversion of agricultural land to urban uses is expected to occur over a 20-year period for the 20-year growth boundary and over a 40 year buildout period for the 40 year buildout growth boundary. During these periods conflicts between urban development and ongoing agricultural operations will continue to occur. As a result, project impacts relating to conflicts between urban development and ongoing agricultural operations are considered **significant and unavoidable**.

Conflicts between Urban Land Uses and Ongoing Agricultural Operations

Impact 5.11-5 Development accommodated by the Compact development, Jobs Emphasis or Planning Commission Environmental review Alternatives for both the 20-year and 40 year buildout growth boundaries could result in a conflict with land currently zoned for agriculture as well as with existing Williamson Act contract lands. This is considered a potentially significant impact.

Pursuant to Government Code Section 51243, the City is required to provide for the exclusion of uses other than agriculture, and other than those compatible with agricultural uses, for the duration of a Williamson Act contract. If a city annexes land under Williamson Act contract, the city must succeed to all rights, duties, and powers of the county unless conditions in Government Code Section 512343.5 apply to give the city the option to not succeed the contract.

However, these stipulations do not apply to those lands within the General Plan Study Area because all lands under Williamson Act contract were contracted prior to city annexation. Therefore the City must allow agricultural uses to continue on lands under Williamson Act contracts until those contracts expire or are canceled, which could take up to 10 years after application for nonrenewal is submitted.

As discussed in the Setting and illustrated by Figure 5.11-3, the Study Area contains approximately 5,216 acres of land subject to Williamson Act contracts, with 3,209 non-renewal acres. The majority of acres lying outside of the existing city limits and within the county is designated and zoned for agricultural use.

The proposed General Plan contains several goals, policies, and action items that would assist in reducing loss of Williamson Act contracted lands and conversion of agriculturally zoned lands to urban land uses. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not fully mitigating) this impact.

Draft Policy Document Response

Policies

NR-2.1 Agricultural land preservation. Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.

- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.
- NR-2.3 Greenbelt.** The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.
- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.
- NR-2.5 Regional farmland preservation.** The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.
- NR-2.6 Financial incentives.** The City shall support tax and economic incentives, at both the local and state levels, to enhance the economic competitiveness of agricultural exports.
- NR-2.7 Markets.** The City shall allow, encourage, and support local activities that strengthen the viability of agricultural markets, including farmers' markets, the on-site sale of produce, and special events that promote local agricultural products.
- NR-2.8 Community gardens.** The City shall allow and encourage urban agriculture in the form of community gardens as an important recreational, educational, landscaping, and community-nurturing resource, and an important source of fresh food in urbanized areas.
- NR-2.9 Williamson Act.** The City shall allow cancellation of Williamson Act contracts only if the City Council finds that cancellation is consistent with State law.
- NR-2.10 Right-to-farm.** The City shall continue to apply its right-to-farm ordinance.
- NR-2.11 Soil conservation.** The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.

Implementation Measures

- NR-C** The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program will address at least the following:
4. The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
 5. Criteria for assessing the suitability of agricultural lands to be permanently protected.

6. Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other permanent farmland conservation mechanism.

NR-F The City shall investigate a mechanism for funding the acquisition and management of lands for mitigation land bank for impacts to biological and/or agricultural resources.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to the permanent conversion of productive agricultural lands. Nevertheless, implementation of any of the Equal-Weight alternatives would result in the permanent loss of productive agricultural land. Therefore, this impact is considered **significant and unavoidable**.

Additional Mitigation

No additional feasible programmatic mitigation measures are available that would effectively reduce impacts beyond implementation of the policies included in the draft General Plan.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The proposed General Plan addresses potential long-term cumulative development within the City, as well as areas on the City's boundaries that may be annexed within a 40 year buildout horizon. In that sense, impacts associated with the proposed project are the same as cumulative impacts, since the project is a programmatic document that addresses long-term cumulative development. From a regional perspective, however, development in the City can be seen in the context of future development throughout Stanislaus County and the Central Valley in general, which have similar physical characteristics, including substantial areas of prime farmland with few topographic constraints to development. From this point of view, cumulative impacts could encompass those that result from development in areas beyond the control of the City of Patterson. Nevertheless, the City's contribution to such impacts must be considered in this analysis.

Cumulative Impacts

Cumulative Loss of Important Farmland

Impact 5.11-6 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40 year buildout growth boundaries together with regional development, potential roadway improvements and a regional park will contribute to the cumulative loss of Important Farmland. This impact is considered cumulatively considerable and significant and unavoidable.

Most of the agricultural land in the western Stanislaus region is considered prime farmland. Cumulative development throughout Stanislaus County and the City of Patterson would impact the region's agricultural resources, and convert prime farmland to urban uses. Future development in accordance with the City's General Plan would incrementally contribute to this substantial change, the impacts of which are described previously in the project-specific analysis. Overall, the cumulative impact to agriculture is considered significant and unavoidable.

Statewide, over 81,000 acres of prime farmland were converted to urban uses during the period 2004-06, which exceeds any other two-year period in state history. During the same period, Stanislaus County was notable as having the highest proportion of urban development on prime farmland (81%) of any county in the state (California Farmland Conversion Report, 2004-2006, California Department of Conservation, December 2008). The next closest counties in this regard were Tulare and San Joaquin, with 47% and 46% of urbanization occurring on prime farmland, respectively.

Since 1992, Stanislaus County has experienced an increasing rate of conversion of prime farmland to urban development (from 588 acres in 1992-1994, 695 acres in 1994-1996, 1,648 acres in 1996-1998, 703 acres in 1998-2000, and 2,044 acres in 2000-2002). However, the amount of irrigated farmland in the County converted to urban use declined during 2004-06 as compared to the previous two-year period, down from 3,460 acres to 1,359. At the same time, substantial irrigated acreage within the county was converted to non-urban uses. Nearly one half (48% of the 4,401 converted irrigated acres) were associated with the creation or enhancement of wildlife refuges and wetland reserves (Department of Conservation, 2008).

As noted in the discussion under Impact 5.11-1, long-term development under each alternative would convert substantial prime farmland to urban uses, as follows:

Compact Development Alternative:	4,421 acres
Jobs Emphasis Alternative:	7,118 acres
PC Environmental Review Alternative:	8,372 acres

In addition, as discussed under impacts 5.11-2 and 5.11-3 roadway improvements and development of a regional park in the vicinity of the San Joaquin River could result in the permanent loss of an additional 157 to 170 acres of Important Farmland.

Draft General Plan Policy Response

The draft policies listed above for Project Impact 5.11-1 will help mitigate regional impacts related to the conversion of agriculture. However, cumulative impacts will remain **cumulatively considerable and significant and unavoidable**.

Additional Mitigation

No additional feasible mitigation measures would be able to reduce cumulative impacts to a less than significant level.

Cumulative Conflicts between Urban Land Uses and Ongoing Agricultural Operations

Impact 5.11-7 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would create conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40 year buildout growth boundaries. These impacts are considered cumulatively considerable.

Development accommodated by the Equal-Weight Alternatives, together with development throughout the region will result in compatibility conflicts between urban development and ongoing agricultural operations. This impact is considered cumulatively considerable and significant and unavoidable.

Draft General Plan Policy Response

The policies and implementation measures recommended for Project Impact 5.11-4 will help mitigate regional impacts related to conflicts between urban and agricultural uses.

Additional Mitigation

No additional feasible mitigation is available.

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5.12 HAZARDS AND HAZARDOUS MATERIALS

Introduction

The section analyzes the potential for the Equal-Weight Alternatives to create hazards to public health or the environment related to hazardous materials, substances, or waste and also identifies other potential hazards that may impact public safety. The reader is referred to Section 5.9, Geology and Soils, for information regarding impacts associated with geologic and seismic hazards, Section 5.13, Hydrology and Water Quality, for information regarding impacts associated with water quality and flooding, and Section 5.3 Public Services and Utilities, for impacts related to fire hazards.

Setting

Hazardous Materials Defined

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

...A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (California Code of Regulations, Title 22, Section 66260.10).

Chemical and physical properties that cause a substance to be considered hazardous, including the properties of toxicity, ignitability, corrosivity, and reactivity, are defined in the CCR, Title 22, Section 66261.20 through 66261.24. Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility.

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 risk to health and public safety is determined by the probability of exposure, in addition to the inherent toxicity of a material (California Department of Toxic Substances Control, 2009).

This section discusses five types of potential hazards related to the Equal-Weight Alternatives:

- Transport of hazardous materials
- Exposure to hazardous materials
- Airport operations hazards
- Interference with emergency response plans
- Rail operations

Hazardous Materials Sites within the Study Area

The State of California Hazardous Waste and Substances Site List (also known as the “Cortese List”) is a planning document used by state and local agencies and developers to comply with the siting requirements prescribed by federal State and local regulations relating to hazardous materials sites.

California Government Code Section 65962.5 requires the California Environmental Protection Agency (Cal-EPA) to annually update the Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for preparing a portion of the information that comprises the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete list. DTSC's Site Mitigation and Brownfields Reuse Program EnviroStor database provides DTSC's component of Cortese List data by identifying State Response and/or Federal Superfund and backlog sites listed under Health and Safety Code Section 25356. In addition, DTSC's Cortese List includes Certified with Operation and Maintenance sites. A search of the Cortese database conducted in March, 2010 for sites within the Study Area produced the following active sites:

Table 5.12-1. Hazardous Materials Sites Identified Within the Study Area			
Site Name	Address	Facility Type	Cleanup Status
PRC Patterson, Inc	13331 N. HWY 33	Corrective Action	Active
PRC Patterson, Inc	13331 N. HWY 33	Hazardous Waste Undergoing Closure	Active
Special Education and Alternative Education School Site	513 Walnut Avenue and 673 Walnut Avenue	School Cleanup	Active

Source: Department of Toxic Substances Control Envirostor, March, 2010.

In addition to EnviroStor, the CAL-SITES Abandoned Sites Information System (ASPIS) database, compiled by Cal-EPA, can also be used to identify and track potential hazardous waste sites. This database is regularly uploaded to the State's Geographic Environmental Information Management System (GEIMS) so that agencies and the general public can access information regarding a specific site. GEIMS, a data warehouse which tracks regulatory data regarding leaking underground fuel tanks (LUFTs), other contaminant release sites, water quality information, water use information, and infrastructure data, can be used to identify properties that are known or have had contaminant spills. GeoTracker, the interface to GEIMS, uses commercially available software to allow users to access data from GEIMS over the Internet. Sites listed, as of March 2010, are summarized in Table 5.12-2.

The National Priorities List (NPL) is maintained by the U.S. Environmental Protection Agency (EPA) and lists the most severe hazardous waste sites as identified by Superfund. Sites are put on the NPL after they have been scored using the Hazard Ranking System, as well as having been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money. The NPL is primarily an informational resource that identifies sites that may warrant cleanup. As of March 2010, there were no NPL sites in the Study Area.

Table 5.12-2: Hazardous Waste Sites Within the General Plan Study Area

Site Name	Cleanup Status	Type	Address
Old Ranch Headquarters	Open - Inactive	Other Cleanup	999 Balfour Rd.
Patterson Flying Service	Open - Inactive	Surface Disposal	P.O.Box 692
Chevron, Dmsi, Patterson	Open - Verification Monitoring	Other Cleanup	800 S. Hwy 33
Chevron, Thompson Chevrolet, Patterson	Open - Site Assessment	Other Cleanup	Hwy 33
Pg&E Substation, Np- 1166	Open - Inactive	Other Cleanup	Canal Road
Tosco- Patterson Pump Station Np139	Open - Inactive	Other Cleanup	Oak Flat Road
A.L. Castle, Inc. (Pac Veg Inc.)	Open - Inactive	Other Cleanup	1607 West Marshal Rd
Vieira Petroleum Co Patterson Facility	Open - Verification Monitoring	Other Cleanup	341 S. 1st Street
Campbell Ranch	Open - Inactive	Other Cleanup	16513, 16521 Ward Avenue
Chevron Pipeline Co - Former Standard Oil Pipeline	Open - Inactive	Other Cleanup	Highway 33
Karl Herger Inventory Farm	Open - Inactive	Other Cleanup	1266 Almond Avenue
Westside Cleaners & Laundry	Open - Inactive	Other Cleanup	101 Del Puerto Avenue
Mid Valley Agriculture (Former Pacoast Inc.)	Open - Remediation	Other Cleanup	105 North 1st Street
Patterson Flying Service Corporation	Open - Remediation	Other Cleanup	2549 Sperry Ave
Thorkelson Ranch	Open - Inactive	Other Cleanup	13218 Elm Avenue
Ez Serve Store	Completed - Case Closed	Leaking underground tank	115 Del Puerto
Musson's Sporting Goods	Completed - Case Closed	Leaking underground tank	103 Second
Jem Electric	Completed - Case Closed	Leaking underground tank	118 Second
Westside Laundry	Open - Inactive	Other	420 Del Puerto Rd
Harris Property Fmr Chem Away Inc	Open - Site Assessment	Leaking underground tank	113 Third
Patterson Ford Mercury	Completed - Case Closed	Leaking underground tank	250 El Circulo
T And M Market	Completed - Case Closed	Leaking underground tank	107 Second
John's Mini Mart	Open - Remediation	Leaking underground tank	320 Second
De Lash Enterprises Inc	Completed - Case Closed	Leaking underground tank	16561 Hwy 33
Campbell Ranch	Open - Remediation	Other Cleanup	16521 Ward
Paul Oil Company Inc	Open - Remediation	Leaking underground tank	511 Second
Castle A L, Inc.	Open - Inactive	Other Cleanup	1607 W. Marshal Rd
Gibson Refinery Service	Open - Inactive	Other Cleanup	13331 Highway 33
California Realty Exchange	Open - Inactive	Other Cleanup	136 S. Sixth
Stanislaus Bombing Target Range	Former bombing range - may contain unexploded ordnance	FUDS	West of I-5, north of Oak Flat Road

Source: CAL-SITES Abandoned Sites Information System, March 2010, and Environmental Data Resources, Inc., EDR Radius Map Report, March 18, 2010.

Landfills and other solid waste disposal facilities can also be sources of groundwater contamination. The California Integrated Waste Management Board (CIWMB) lists 14 such sites in Stanislaus County, including landfills (open and closed) and other solid waste disposal facilities. However, there are no sites identified within Stanislaus County with waste constituents above hazardous waste levels outside the waste management unit.¹ There are no landfills or abandoned landfills within the Study Area.

Known and Unknown Large Hazardous Material Issues in the Study Area

Pesticides

Pesticides are also a major source of groundwater pollution that frequently contaminate drinking water and irrigation wells. Pesticide properties include both physical and chemical characteristics such as solubility, adsorption, volatility, and the potential for degradation. Pesticide chemicals that dissolve readily in water are highly soluble, thus making them available for transport with the water flow. Such pesticides have a tendency to leach from the soil into groundwater. However, many pesticides do not leach because they are adsorbed into soil particles or organic matter, even though they may have a relatively high solubility. Highly volatile chemicals are easily lost to the atmosphere and are less likely to leach into the groundwater, unless they are also highly soluble and collected in water systems. Degradation affects the potential for a pesticide to reach groundwater, and the persistence of the pesticide influences the potential for long-term contamination. The longer the compound lasts before it is broken down, the longer it is subject to the forces of leaching. However, many highly persistent pesticides (e.g., chlorinated hydrocarbons) have not been found in groundwater because of their low solubility and strong adsorption to soil particles. On the other hand, some pesticides of low persistence (e.g., aldicarb) have been found in groundwater.

Soil properties that affect pesticide movement include texture, permeability, and organic matter content. Management practices, or the methods used to apply pesticides, are another factor determining leaching potential. Injection or incorporation into the soil, as in the case of nematocides, makes the pesticide most readily available for leaching. Most of the pesticides that have been detected in groundwater have been incorporated into the soil rather than sprayed onto growing crops. It is important to remember that pesticide and groundwater relationships are site-specific, and even minor changes in the soil-crop-environment-pesticide relationship can change the potential for groundwater contamination.

Other Sources

Dry cleaning operations and historical operation of tanneries have led to soil and groundwater contamination by solvents, including perchloroethylene (PCE), tetrachloroethene (TCE), and chromium. The Central Valley Regional Water Quality Control Board (RWQCB) is currently the oversight agency for contaminated sites of this type in the Study Area.

Transportation of Hazardous Materials

The transportation of hazardous materials is subject to various federal, state, and local regulations. Title 13 of the California Code of Regulations designates specific roadways and transportation routes for explosives, poisonous inhalation hazards, and radioactive materials. Interstate 5 is the only designated route within the Study Area. When a hazardous material is transported into the Study Area, the most direct route must be taken to or from the nearest state-designated transportation route. The following are descriptions of provisions included in the California Vehicle Code (CVC) and pertain to the transportation of hazardous-related materials:

¹ Source: California Environmental Protection Agency, Cortese List. Available at: <http://www.calepa.ca.gov/SiteCleanup/CorteseList/CurrentList.pdf>

- The Highway Patrol designates routes in California which are to be used for the transportation of explosives. (CVC Section 31616)
- The CVC applies when the explosives are transported as a delivery service for hire or in quantities in excess of 1,000 pounds.
- The transportation of explosives in quantities of 1,000 pounds or less, or other than on a public highway, is subject to the California Health and Safety Code. (CVC Section 31601(a))
- 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 of, or the loading of, such materials. (CVC Section 31602(b) and Section 32104(a))
- When transporting explosives through or into a city for which a route has not been designated by the Highway Patrol, drivers must follow routes as may be prescribed or established by local authorities. (CVC Section 31614(a))
- Inhalation hazards and poison gases are subject to additional safeguards. These materials are highly toxic, spread rapidly, and require rapid and widespread evacuation if there is loss of containment or a fire. The Highway Patrol designates through routes to be used for the transportation of inhalation hazards. It may also designate separate through routes for the transportation of inhalation hazards composed of any chemical rocket propellant. (CVC Section 32100 and Section 32102(b))

In addition, two active hazardous liquids pipelines extend along the Interstate 5 corridor in the western portion of the Study Area. The pipelines include crude oil pipelines owned by Chevron Pipe Line Company and Shell Oil Company.

Airport Operations

Aircraft related hazards are generally associated with aircraft accidents, particularly during takeoffs and landings. Airport operation hazards include incompatible land uses, power transmission lines, wildlife hazards (e.g., bird strikes) and tall structures that penetrate the imaginary surfaces surrounding an airport. (See Section 5.8 Noise for a detailed description of the airports and operations.)

The Patterson Airport and Crows Landing Naval Airfield are located within the General Plan Study Area. General Plan land use designations and corresponding zoning and other requirements have been established by Stanislaus County and the City in order to be consistent with the requirements of the Airport Land Use Compatibility Plans (ALUCP) for each airfield. The ALUCPs establishes certain land use restrictions and height requirements within the vicinity of the airport in order to minimize the effect of the airport on people and structures on the ground in the areas of noise, safety, and land use (see Regulatory Setting, below).

Rail Operations

Potential hazards associated with rail operations include collisions and train derailment. Either of these can lead to human injury or death as well as various environmental impacts. The Federal Railroad Administration (FRA) regulates railroad safety and provides oversight to the use of railroads. (See Section 5.8 Noise for a detailed description of the railroad and operations.)

The California Northern Railroad (CFNR) currently operates freight trains over the Westside Branch of the Union Pacific Railroad (UPRR) through Patterson between Tracy and Los Banos. The CFNR is one of several Class III short-line railroad companies owned by RailAmerica, Inc. Cal Northern operates over Southern Pacific Railroad (SP) tracks (now Union Pacific Railroad) under a long-term lease. According to the Federal Railroad Administration rail crossing inventory (01/01/96), an average of six trains per day pass through Patterson, including switching movements at local industries. Based upon field

observations, this may be a high estimate for current operations over the line. Freight trains may occur at any time during the day or night. The current maximum train speed through Patterson is 25 mph.

This mainline route was formerly known as Southern Pacific's "West Side Line" and at one time extended from Tracy, California and then south through the West side of the San Joaquin Valley (I-5 corridor) via Patterson, Gustine, Newman, Los Banos, Oxalis and then east to Fresno via Ingle and Kerman. California Northern Railroad now operates the northern section of the line from Tracy - Los Banos. SJVR operates the southern section of the line from Oxalis to Fresno and was at one time owned by Port Railroads, Inc. (PRI; also a Kyle subsidiary) and operated by the SJVR. In 1996 the PRI was merged into the SJVR. Both the PRI and SJVR were already Kyle Railway subsidiaries. The section of track between Los Banos and Oxalis was abandoned by Southern Pacific in 1993 and the tracks were removed soon after. The Southern Pacific constructed the track from Tracy to Newman (37 miles) and from Los Banos to Armona (near Fresno) in 1891. Southern Pacific's overnight Owl passenger train (#57/58) operated over this line between San Francisco and Los Angeles into the 1960s.

At present (2010) there are between one to two freight trains per day through Patterson.

Regulatory Setting

Federal

Environmental Protection Agency

The United States Environmental Protection Agency (EPA) works closely with other federal agencies, state and local governments, and Indian tribes to develop and enforce regulations under existing environmental laws. EPA is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes responsibility for issuing permits and for monitoring and enforcing compliance.

Other Federal Agencies

Other federal agencies that regulate hazardous materials include the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), and the National Institute of Health (NIH). The following federal laws and guidelines govern hazardous materials:

- Federal Water Pollution Control
- Clean Air Act
- Occupational Safety and Health Act
- Federal Insecticide, Fungicide, and Rodenticide Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Guidelines for Carcinogens and Biohazards
- Superfund Amendments and Reauthorization Act Title III
- Resource Conservation and Recovery Act
- Safe Drinking Water Act
- Toxic Substances Control Act

Federal Aviation Administration

The mission of the Federal Aviation Administration (FAA) organization is to provide leadership in planning and developing a safe and efficient national airport system to satisfy the needs of aviation interests of the United States, with due consideration for economics, environmental compatibility, local proprietary rights, and safeguarding the public investment. Federal Aviation Regulation (FAR) 49 Code

of Federal Regulations (CFR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:

- Evaluating the effect of the construction or alteration on operating procedures;
- Determining the potential hazardous effect of the proposed construction on air navigation;
- Identifying mitigating measures to enhance safe air navigation; and
- Charting of new objects.

The Federal Aviation Administration FAR 49 CFR Part 77 imaginary surfaces, which are used for airport design and planning purposes, are described as follows:

- Primary – Aligned (longitudinally) with each runway and extends 200 feet from each runway end.
- Approach – Longitudinally centered with the runway and extends beyond the primary surface.
- Horizontal – Horizontal plane 150 feet above the established airport elevation. Constructed by swinging arcs around the end of the primary surface.
- Conical – 20:1 slope surface extending beyond the horizontal surface.
- Transitional – Constructed to join approach and horizontal or approach and transitional surfaces.

The FAR Part 77 notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace. The regulations identify three-dimensional imaginary surfaces on and around airports through which no object should penetrate. All development projects under the proposed General Plan would be subject to review associated with Part 77, if obstruction into the navigable airspace is anticipated.

U.S. Department of Transportation

The United States Department of Transportation (USDOT) provides oversight for the country's gas and hazardous liquids pipeline transportation. Their responsibilities are promulgated under Title 49, United States Code (USC) Chapter 601. The Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), administers the national regulatory program to ensure the safe transportation of gas and other hazardous materials by pipeline.

Two statutes provide the framework for the Federal pipeline safety program. The Natural Gas Pipeline Safety Act of 1968 as amended (NGPSA) authorizes the USDOT to regulate pipeline transportation of natural (flammable, toxic, or corrosive) gas and other gases. Similarly, the Hazardous Liquid Pipeline Safety Act of 1979 as amended (HLPESA) authorizes the USDOT to regulate pipeline transportation of hazardous liquids (crude oil, petroleum products, anhydrous ammonia, and carbon dioxide). Both of these Acts have been recodified as 49 USC Chapter 601.

The OPS shares portions of this responsibility with state agency partners and others at the federal, state, and local level. The State of California is certified under 49 USC Subtitle VIII, Chapter 601, §60105. The State has the authority to regulate intrastate natural and other gas pipeline facilities. The California State Fire Marshal has jurisdiction for hazardous liquid pipelines. The federal pipeline regulations are published in Title 49 of the Code of Federal Regulations (CFR), Parts 190 through 199.

49 CFR 192 Subpart O, Pipeline Integrity Management grew out of a series of pipeline incidents with severe consequences. This Subpart requires operators of gas pipeline systems in High Consequence Areas (HCA's) to significantly increase their minimum required maintenance and inspection efforts. For example, all lines located within HCA's must be analyzed by conducting a baseline risk assessment. In

general, the integrity of the lines must also be evaluated using an internal inspection device or a direct assessment, as prescribed in the regulation.

State Regulations

California Environmental Protection Agency

The California Environmental Protection Agency (Cal-EPA) was created in 1991 by Governor's Executive Order. There are six agencies within the Cal/EPA "umbrella" which include the following:

- Cal EPA
- Air Resources Board
- Department of Pesticide Regulation
- Department of Toxic Substances Control
- Office of Environmental Health Hazard Assessment
- State Water Resources Control Board

Applicable state and local laws enforced by Cal EPA and its individual agencies include the following:

- Hazardous Waste Control Law
- Hazardous Substances Information and Training Act
- Air Toxics Hot Spots and Emissions Inventory Law
- Underground Storage of Hazardous Substances Act
- Porter-Cologne Water Quality Control Act

Subsequent development under the proposed General Plan may be subject to one or more of the above laws.

Reclaimed Water Standards

Title 22 of the California Code of Regulations outlines reclaimed water standards in the State of California, and reclaimed water is primarily regulated by the California Department of Health Services (DHS), in coordination with the RWQCBs. DHS has produced The Purple Book, which contains California health laws related to reuse of disinfected tertiary recycled water. Disinfected tertiary recycled water is defined as filtered and subsequently disinfected wastewater that exhibits extremely low levels of coliform bacteria and turbidity. This publication identifies allowable uses for disinfected tertiary recycled water, as well as limitations and requirements for the use and control of recycled water.

Disinfected tertiary treated effluent may be used for groundwater recharge of domestic water supply aquifers by surface spreading provided the effluent is of a quality that fully protects human health at all times. For groundwater recharge projects, DHS makes recommendations to the RWQCB based on the relevant aspects of the project, including effluent quality and quantity, spreading area operations, soil characteristics, hydrogeology, residence time, and distance to withdrawal.

Department of Toxic Substances Control

Within Cal-EPA, the Department of Toxic Substances Control (DTSC) has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the state agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL).

California Department of Transportation, Division of Aeronautics

The California Division of Aeronautics fosters and promotes the development of a safe, efficient, dependable, and environmentally compatible air transportation system. The division issues permits for and annually inspects hospital heliports and public-use airports, makes recommendations regarding proposed school sites within two miles of an airport runway, and authorizes helicopter landing sites at or near schools. Aviation system planning provides for the integration of aviation into transportation system planning on a regional, statewide, and national basis. The Division of Aeronautics administers noise regulation and land use planning laws that foster compatible land use around airports and encourages environmental mitigation measures to lessen noise, air pollution, and other impacts caused by aviation. The division prohibits the construction of any structure that would penetrate an imaginary surface, unless the Division of Aeronautics has first issued a permit allowing its construction.

Local Regulations

City of Patterson Emergency Operations Plan

The City of Patterson's Emergency Operations Plan (EOP) was adopted in June, 2009, and addresses the planned response to extraordinary emergency situations associated with natural or human caused disasters, technological incidents, and national security emergencies in or affecting the City of Patterson.

The EOP is based on the National Incident Management System and its component parts. The foundation of NIMS is based on the California Standardized Emergency Management System (SEMS) including the five functional areas of incident or event management, operational coordination, planning and intelligence, logistical support, and finance/administration support. The EOP serves as the basis for response as well as recovery efforts and activities within the City of Patterson. The EOP accomplishes the following:

- Uses as its foundation, the Standardized Emergency Management System (SEMS) as its functional components and concepts.
- Complies with and integrates the National Incident Management System (NIMS) concepts related to local government emergency management, including coordination with Federal, State and Local agencies and jurisdictions as well as non-governmental entities.
- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting the City of Patterson.
- Identifies the policies, responsibilities and procedures required to protect the health and safety of the City of Patterson, public and private property and the environmental effects of natural and technological emergencies and disasters.
- Establishes the operational concepts and procedures associated with initial response operations (field response) to emergencies, the expanded response operations (City Emergency Operations Center (EOC) activities) and the recovery process.

The City of Patterson, with its mix of urban and rural areas, and rapidly growing population, is subject to a variety of negative impacts from various hazards and threats. The EOP addresses three broad categories of hazards that threaten natural, technological and domestic security threats:

Natural Hazards	Technological Hazards	Domestic Security Threats
earthquakes floods extreme weather/storm wildland fires	dam failure hazardous material transportation emergencies train accident	civil unrest

Airport Land Use Plans

Under various provisions of state law, cities and counties are required to either bring their general plans and any specific plans into compliance with the adopted County Airport Land Use Commission (ALUC) plan for the territory around designated airports or to make specified findings. The purpose of the airport land use plan and the consistency requirement is to eliminate or minimize development around airports that would be subject to significant levels of aircraft noise or would pose a safety hazard to aircraft of occupants of the development in the event of a plane crash.

In 1978, the Stanislaus County ALUC adopted an Airport Land Use Commission Plan for five airports under its jurisdiction. It has since been amended in 2004. As part of the plan, the ALUC established planning area boundaries around each airport and developed land use plans within these boundaries, including recommending compatible land uses and recommending height restrictions and building standards for soundproofing within the planning boundaries. Portions of two airport planning boundaries fall within the Patterson Study Area: Patterson Airport and Crows Landing Naval Auxiliary Landing Field.

The ALUC plan divides the airport planning regions into four areas:

- 1 = airport building area;
- 2 = other airport property;
- 3 = approach and transitional surfaces; and
- 4 = other lands within the airport planning boundary.

Figure 5.12-1 shows the adopted ALUC planning boundaries for Patterson Airport and Crows Landing Naval Auxiliary Landing Field. Table 5.1-3 lists the compatible, prohibited, and conditionally approvable uses for each area within the airport planning boundaries, as defined by the ALUC plan.

In August of 1983, the ALUC evaluated City and County general plan designations and zoning for consistency with the airport land use plans. The currently adopted Patterson General Plan and zoning and the Stanislaus County General Plan and zoning are compatible with the airport land use plans for Patterson Airport and Crows Landing Naval Auxiliary Landing Field. All lands surrounding Patterson Airport are subject to a height limiting ordinance. There is no adopted height limiting ordinance surrounding the Crows Landing Naval Auxiliary Landing Field.

A revised Airport Land Use Compatibility Plan for the Crows Landing Airfield has been prepared and is currently under review (March, 2010) by the Airport Land Use Commission. The revised Plan will replace the previous compatibility plan for the airport adopted as part of the countywide plan in 1978 and amended in 2004. The need for preparation of the revised plan has been driven largely by three factors.

- Closure of the former Crows Landing Naval Auxiliary Landing Field.
- County's intention of redeveloping a portion of the former Crows Landing Air Facility as a public use, general aviation (GA) airport.
- Lastly, and perhaps most significant, a 1994 state law established a requirement that ALUCs "be guided by" information in the Airport Land Use Planning Handbook published by the California Department of Transportation when formulating or amending compatibility plans.

The revised Plan sets forth safety compatibility areas as shown on Figure 5.12-2 which are further described as follows:

- Review Area 1 consists of locations where noise and/or safety concerns may necessitate limitations on the types of land uses. Specifically, Review Area 1 contains both the 55 dB CNEL noise contours and all of the safety zones depicted on the associated maps in this chapter. Within the Review Area 1, all types of land use actions are to be submitted to the ALUC for review to the extent review is required by law.
- Review Area 2 consists of locations beyond Review Area 1 but within the airspace protection and/or overflight areas depicted on the associated maps in this chapter. Limits on the heights of structures are the only restrictions on land uses within Review Area 2. The additional function of this area is to define where various mechanisms to alert prospective property owners about the nearby airport are appropriate. Within Review Area 2, only land use actions for which the height of objects is an issue is subject to ALUC review.

The draft ALUP establishes safety zones around the Airfield with corresponding restrictions (Figure 5.12-2). In addition, Figure 5.12-3 shows areas where an aviation easement or aircraft overflight easement would be required of new development. An aviation easement is an agreement that grants the right to fly airplanes over property, even if the practice causes damage, inconvenience, or loss of property value. Such an agreement usually restricts the property owner from building or growing anything over a specified height. An overflight easement confirms that aircraft overflights are expressly permitted by the United States Code. 49 USC § 40103 states: "(a) Sovereignty and Public Right of Transit. - (1) The United

Figure 5.12-1: Airport Land Use Plans for the Patterson Airport and Crows Landing Airfield

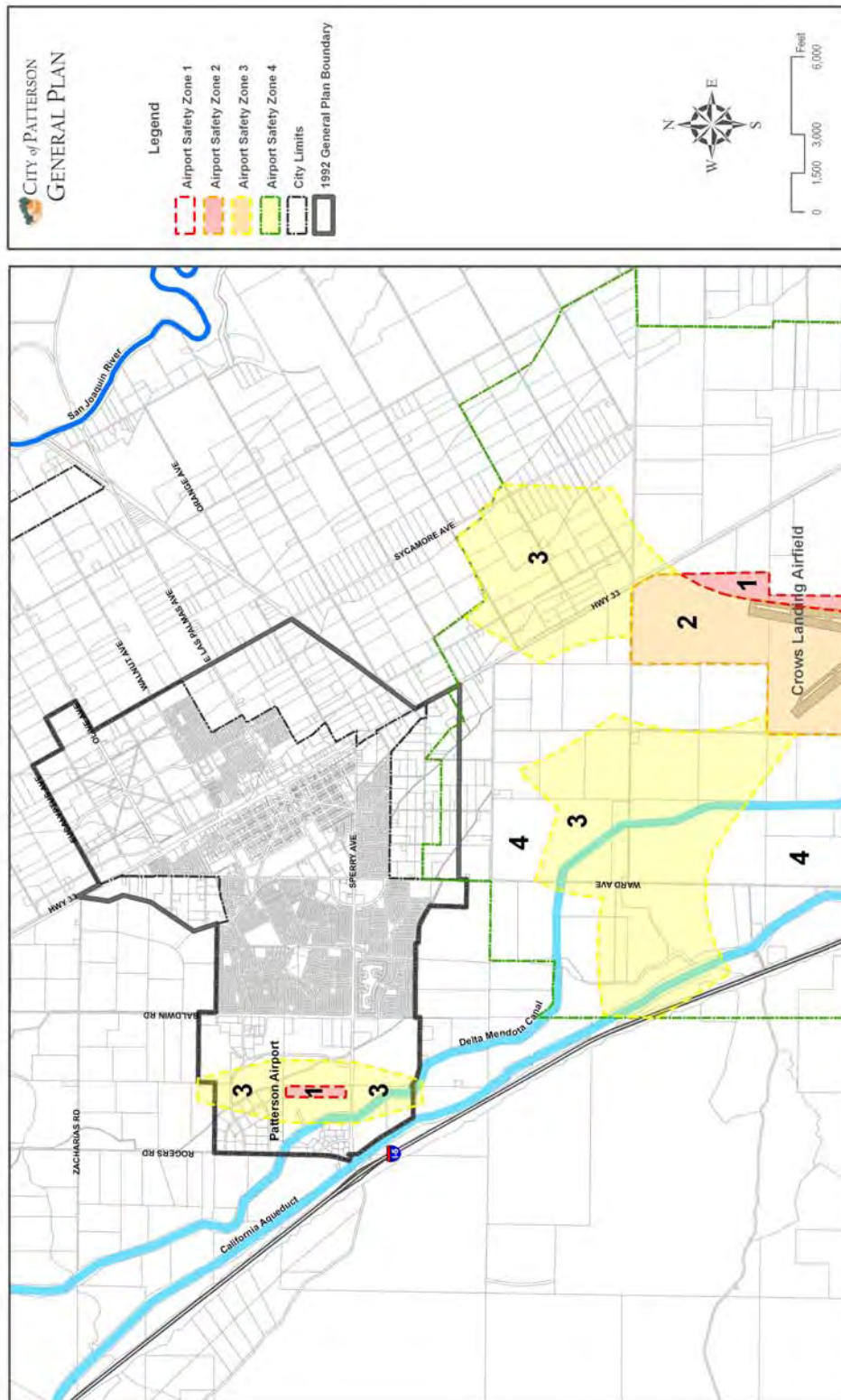


Table 5.12-3: Land Use Compatibility Matrix for the Patterson Airport and Crows Landing Airfield

Uses	Airport Building Area	Other Airport Property	Approach and Transitional Surfaces	Other Lands Within Airport Planning Boundary
	1	2	3	4
Agricultural Uses				
Truck and specialty crops	O	O	O	O
Field crops	O	O	O	O
Pasture and rangeland	O	O	O	O
Orchard and vineyards	X	X	O	O
Dry farm and grain	O	O	O	O
Tree farms, landscape nurseries, and greenhouses	O	O	C	O
Fish farms	X	X	O	O
Feed lots and stockyards	X	X	O	O
Poultry farms	X	X	C	O
Dairy farms	X	X	C	O
Natural Uses				
Fish and game preserves	X	X	O	O
Land reserves and open space	O	O	O	O
Flood and geological hazard areas	O	O	O	O
Waterways: rivers, creeks, canals, swamps, bays lakes	O	O	O	O
Residential and Institutional Uses				
Rural residential – 10 acres or more	X	X	C	O
Suburban residential – 20,000 sq.ft. to 10 acres	X	X	X	O
Urban single family – lot sizes under 20,000 sq.ft.	X	X	X	O
Multi-family	X	X	X	O
Mobile home parks	X	X	X	O
Schools, colleges, universities	X	X	X	C
Hospitals	C	C	X	O
Churches	X	X	X	O
Recreational				
Golf course	O	O	O	O
Parks	O	O	O	O
Playgrounds and picnic areas	O	O	O	O
Athletic fields	X	X	X	O
Riding stables and trails	X	X	O	O
Marinas	O	O	O	O
Tennis courts	O	O	O	O
Outdoor Theaters	X	X	X	O
Swimming Pools	O	O	O	O
Fairgrounds and Race Tracks	X	X	X	O
O = Compatible X = Prohibited C = Conditionally Approvable				
Source: Airport Land Use Commission Plan, Stanislaus Airport Land Use Commission, 1978				

**Table 5.12-3: Land Use Compatibility Matrix for the Patterson Airport
And Crows Landing Airfield (cont'd)**

Uses	Airport Building Area	Other Airport Property	Approach and Transitional Surfaces	Other Lands Within Airport Planning Boundary
	1	2	3	4
Commercial Uses				
Aircraft sales and repairs	O	O	O	O
Flying schools	C	C	C	O
Hotels and motels	C	C	X	O
Shopping centers	C	C	X	O
Banks	C	C	X	O
Gas stations	C	C	X	O
Auto storage and parking	O	O	O	O
Office buildings	C	C	C	O
Theaters and auditoriums	X	X	X	O
Public Buildings	C	C	C	O
Taxi, bus and terminals	O	O	X	O
Memorial parks	X	X	X	O
Pet cemeteries	X	X	X	O
Restaurants and food take-outs	C	C	C	O
Retail stores	C	C	C	O
Truck terminals	O	O	O	O
Other service users	C	C	C	O
Industrial Uses				
Research laboratories	C	C	C	O
Warehouses	O	O	O	O
Aircraft factories	O	O	C	O
Air freight terminals	O	O	O	O
Non-air related manufacturing	C	C	C	O
Rail sidings	O	O	O	O
Other transportation parks	O	O	O	O
Petroleum and chemical products bulk storage	C	C	C	O
Utilities				
Reservoirs	C	C	O	O
Water treatment	C	C	O	O
Sewage disposal	C	C	O	O
Petroleum and chemical products bulk storage	C	C	C	O
Electrical plants	C	C	C	O
Power lines	C	C	C	O
O = Compatible X = Prohibited C = Conditionally Approvable				
Source: Airport Land Use Commission Plan, Stanislaus Airport Land Use Commission, 1978				

Table 5.12-4: Draft Safety Compatibility Table – Crows Landing Airfield

COMPATIBILITY POLICIES **CHAPTER 2**

Land Use Category ¹	Safety Zone						Criteria for Conditionally Compatible Uses
	1	2	3	4	5	6	
Note: Multiple land use categories and compatibility criteria may apply to a project							Numbers below indicate zone in which condition applies; Floor Area Ratio (FAR) limits also apply where shown in yellow cells
Max. Sitewide Average Intensity (people/acre)	10	60	100	160	160	no	Maximum Intensity and Lot Coverage Criteria apply to Normally Compatible as well as Conditional land uses <i>See Policy 1.2.7</i>
Max. Single-Acre Intensity (people/acre) <i>applicable to all nonresidential development</i>	20	120	250	400	400	limit	
Maximum Lot Coverage (bldg. footprint) <i>applicable to all development</i>	0%	40%	60%	70%	70%	100%	
Outdoor Uses (limited or no activities in buildings)							
Natural Land Areas: woods, brush lands, desert *							1: Objects above runway elevation not allowed in OFA
Water: flood plains, wetlands, lakes, reservoirs *							1: Objects above runway elevation not allowed in OFA
Agriculture (except residences and livestock): crops, orchards, vineyards, pasture, range land							1: Not allowed in OFA
Livestock Uses: feed lots, stockyards, breeding, fish hatcheries, horse stables *							
Outdoor Major Assembly Facilities (capacity ≥ 1,000 people): spectator-oriented outdoor stadiums, amphitheaters, fairgrounds, zoos							6: Allowed only if site outside zone would not serve intended function
Group Recreation (limited spectator stands): athletic fields, water recreation facilities, picnic areas							3: Allowed only if site outside zone would not serve intended function
Small/Non-Group Recreation: golf courses, tennis courts, shooting ranges *							
Local Parks: children-oriented neighborhood parks, playgrounds							3, 5: Allowed only if site outside zone would not serve intended function
Camping: campgrounds, recreational vehicle/motor home parks							3, 4: Allowed only if intensity criteria met
Cemeteries (except chapels)							
Residential and Lodging Uses							
Single-Family Residential: individual dwellings, townhouses, mobile homes, bed & breakfast inns							2: Portions of parcel including accessory buildings can be in zone; dwelling must be outside of zone 3, 4: Incompatible at density > 4.0 d.u./acre sitewide average or > 12.0 d.u./single acre <i>See Policy 1.2.6</i>
Multi-Family Residential							
Long-Term Lodging (>30 nights): extended-stay hotels, dormitories							
Short-Term Lodging (≤ 30 nights): hotels, motels, other transient lodging (except conference/assembly facilities) [approx. 200 s.f./person]			0.46	0.74			3, 4: FAR limits as indicated
Congregate Care: retirement homes, assisted living, nursing homes, intermediate care facilities							

Table 2

Safety Compatibility Criteria

Crows Landing Airport

Table 5.12-4: Draft Safety Compatibility Table – Crows Landing Airfield (Continued)

CHAPTER 2 COMPATIBILITY POLICIES

Land Use Category ¹ Note: Multiple land use categories and compatibility criteria may apply to a project	Safety Zone						Criteria for Conditionally Compatible Uses Numbers below indicate zone in which condition applies; Floor Area Ratio (FAR) limits also apply where shown in yellow cells
	1	2	3	4	5	6	
Max. Sitewide Average Intensity (people/acre)	10	60	100	160	160	no	Maximum Intensity and Lot Coverage Criteria apply to Normally Compatible as well as Conditional land uses <i>See Policy 1.2.7</i>
Max. Single-Acre Intensity (people/acre) <i>applicable to all nonresidential development</i>	20	120	250	400	400	limit	
Maximum Lot Coverage (bldg. footprint) <i>applicable to all development</i>	0%	40%	60%	70%	70%	100%	
Limited Retail/Wholesale: furniture, automobiles, heavy equipment, lumber yards, nurseries [approx. 250 s.f./person]		0.34			0.92		2, 5: FAR limits as indicated; design site to place parking inside and bldgs outside of zone if possible 2: To maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline 5: Not allowed within BRL (710 feet from runway centerline)
Offices: professional services, doctors, finance, civic; radio, television & recording studios, office space associated with other listed uses [approx. 215 s.f./person]		0.30	0.49	0.79	0.79		2 - 5: FAR limits as indicated 2: To maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline 5: Not allowed within BRL (710 feet from runway centerline)
Personal & Miscellaneous Services: barbers, car washes, print shops [approx. 200 s.f./person]		0.28					2: FAR limits as indicated; to maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline
Vehicle Fueling (except aviation-related): gas stations, trucking & transportation terminals							
Industrial, Manufacturing, and Storage Uses							
Hazardous Materials Production: oil refineries, chemical plants							6: Allowed only if site outside zone would not serve intended function
Heavy Industrial							3, 4: Avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft
Light Industrial, High Intensity: food products preparation, electronic equipment [approx. 200 s.f./person]		0.28	0.46	0.74			2: FAR limits as indicated; to maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline 3, 4: FAR limits as indicated; avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft
Commercial, Office, and Service Uses							
Major Retail: regional shopping centers, 'big box' retail [approx. 110 s.f./person]			0.25	0.40			3, 4: FAR limits as indicated; capacity <1,000 people per bldg; evaluate eating/drinking areas separately if > 10% of total floor area
Local Retail: community/neighborhood shopping centers, grocery stores [approx. 170 s.f./person]			0.39	0.62			3, 4: FAR limits as indicated; evaluate eating/drinking areas separately if > 10% of total floor area
Eating/Drinking Establishments: restaurants, fast-food dining, bars [approx. 60 s.f./person]			0.14	0.22	0.22		3 - 5: FAR limits as indicated 5: Not allowed within BRL (710 feet from runway centerline)

Table 2, continued

Table 5.12-4: Draft Safety Compatibility Table – Crows Landing Airfield (Continued)

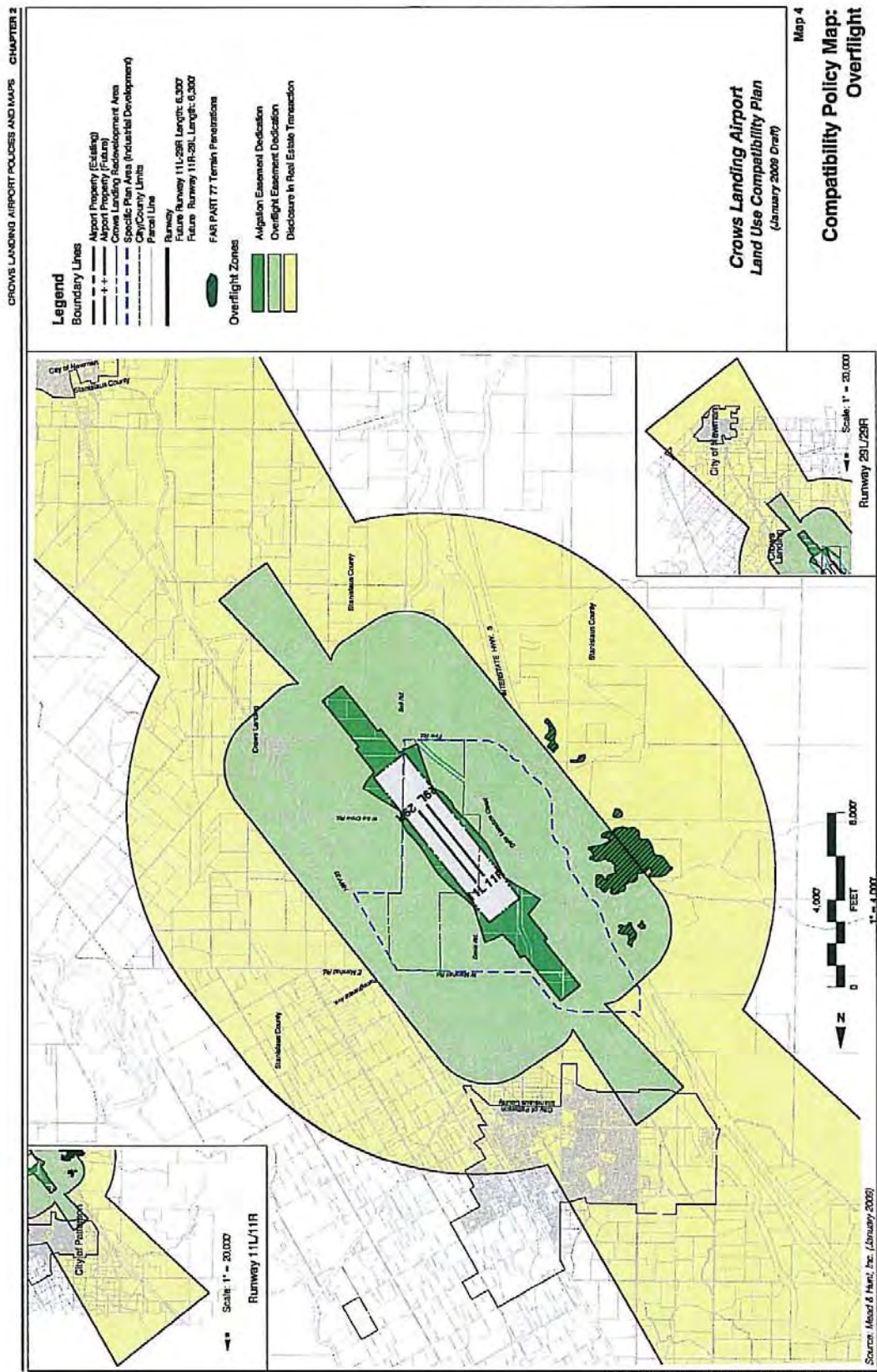
COMPATIBILITY POLICIES CHAPTER 2							
Land Use Category ¹	Safety Zone						Criteria for Conditionally Compatible Uses
	1	2	3	4	5	6	
Note: Multiple land use categories and compatibility criteria may apply to a project							Numbers below indicate zone in which condition applies; Floor Area Ratio (FAR) limits also apply where shown in yellow cells
Max. Sitewide Average Intensity (people/acre)	10	60	100	160	160	no	Maximum Intensity and Lot Coverage Criteria apply to Normally Compatible as well as Conditional land uses See Policy 1.2.7
Max. Single-Acre Intensity (people/acre) <i>applicable to all nonresidential development</i>	20	120	250	400	400	limit	
Maximum Lot Coverage (bldg. footprint) <i>applicable to all development</i>	0%	40%	60%	70%	70%	100%	
Light Industrial, Low Intensity: machine shops, wood products, auto repair [approx. 300 s.f./person]		0.41			1.10		2, 5: FAR limits as indicated; avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft 2: To maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline 5: Not allowed within BRL (710 feet from runway centerline)
Research & Development [approx. 300 s.f./person]		0.41	0.69	1.10			2 - 4: FAR limits as indicated; avoid bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft 2: To maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline
Indoor Storage: wholesale sales, warehouses, mini/other indoor storage, barns, greenhouses [approx. 1,000 s.f./person]		1.38					2: FAR limits as indicated; to maximum extent practical, avoid placing bldgs within 500 feet of extended runway centerline
Outdoor Storage: public works yards, automobile dismantling							
Mining & Extraction							
Transportation, Communication, and Utilities							
Airport Terminals: airline, general aviation							
Rail & Bus Stations							2, 5: Allowed only if site outside zone would not serve intended public function
Transportation Routes: road & rail rights-of-way, bus stops							1: Not allowed in Object Free Area ²
Auto Parking: surface lots, structures							1: Not allowed in Object Free Area ²
Communications Facilities: emergency communications, broadcast & cell towers							2 - 6: Allowed only if site outside zone would not serve intended public function
Power Plants							3, 4: Primary plants not allowed; peaker plants only
Electrical Substations							2, 5: Allowed only if site outside zone would not serve intended public function
Wastewater Facilities: treatment, disposal							
Solid Waste Disposal Facilities: landfill, incineration *							
Solid Waste Transfer Facilities, Recycle Centers *							

Table 2, continued

Table 5.12-4: Draft Safety Compatibility Table – Crows Landing Airfield (Continued)

Land Use Acceptability		Interpretation/Comments
	<i>Normally Compatible</i>	Normal examples of the use are compatible under the presumption that usage intensity and maximum lot coverage criteria will be met. Atypical examples may require review to ensure compliance with usage intensity and lot coverage criteria. Noise, airspace protection, and/or overflight limitations may apply.
	<i>Conditionally Compatible</i>	Use is compatible if indicated Floor Area Ratio (FAR), Lot Coverage, and other listed conditions are met.
	<i>Incompatible</i>	Use should not be permitted under any circumstances.
Notes ¹ Land uses not specifically listed shall be evaluated using the criteria for similar uses. ² Object Free Area (OFA): Dimensions are established by FAA airport design standards for the runway. * These uses may attract birds or otherwise pose hazards to flight. See Section 2.3, <i>Airspace Protection</i> , for applicable policies.		

Figure 5.12-3: Draft Compatibility Policy Map



States Government has exclusive sovereignty of airspace of the United States. (2) A citizen of the United States has a public right of transit through the navigable airspace."

Standards of Significance

Based on criteria derived from Appendix G in the CEQA Guidelines, the proposed General Plan would result in a significant impact to the environment or to human health and safety if the project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
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.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. Be located on a site that is included on a list of hazardous materials sites compiled by Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area.

Project Impacts and Mitigation Measures

Methodology

The following analysis of impacts relating to hazards and hazardous materials relies on existing and projected demographic, housing and employment data from sources that include:

- The 2000 US census of Housing and Population;
- The California Department of Finance;
- The City of Patterson;
- Stanislaus County; and
- The Stanislaus Council of Governments (StanCOG).

Transport of Hazardous Materials

Impact 5.12-1 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives could include the transport of hazardous materials on Study Area roadways within either the 20-year or 40 year buildout growth boundaries, which could result in exposure of such materials to the public either through routine use or due to accidental release. This impact is considered less than significant.

Within the Study Area, State Route 33, Interstate 5, Sperry Avenue and E. Las Palmas Avenue may be used by vehicles carrying hazardous or toxic substances. There are no approved transportation routes in the Study Area for the transportation of explosives. 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) also designates through routes to be used for the transportation of inhalation hazards and may designate separate through routes for the transportation of inhalation

hazards composed of any chemical rocket propellant (California Vehicle Code, Section 32100 and Section 32102(b)).

The transportation of hazardous materials on area roadways is regulated by the California Highway Patrol, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans. Use of these materials is regulated by the DTSC (22 Cal. Code of Regulations Section 66001, et seq.) and is intended to provide an acceptable level of protection to the public from accidental releases. Similarly, the transportation of hazardous liquids or natural gas by pipeline is regulated by the U.S. Department of Transportation and the California State Fire Marshal. The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards and regulations designed to avoid hazardous material releases. All existing and future development would be required to comply with federal, state, and local regulations regarding the handling and transportation of hazardous materials. Therefore this impact would be less than significant.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact of future population growth, including the following:

- HS-4.1 Emergency response plan.** The City shall maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.
- HS-4.2 Emergency access routes.** The City shall identify emergency access routes and shall ensure that they are kept free of traffic impediments.
- HS-4.3 Water sources for fire fighting.** The City shall identify alternative water sources for firefighting purposes for use during a disaster.
- HS-4.4 Siting of emergency facilities.** Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.
- HS-4.5 Command center for emergencies.** The City shall designate and develop a command center for use during times of emergency.
- HS-4.6 Mutual aid.** The City shall maintain mutual aid agreements and communications links with surrounding jurisdictions for assistance during times of emergency.

Compliance with existing federal State and local regulations, along with the policies listed above which apply to each Equal-Weight alternative, will minimize impacts relating to the routine transport of hazardous materials through the Study Area. Therefore, this impact is considered **less than significant**.

Additional Mitigation

None are required.

Release of, and Exposure to, Hazardous Materials

Impact 5.12-2 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan alternatives within either the 20-year or 40 year buildout growth boundaries could result in the release of hazardous materials into the environment under reasonably foreseeable upset or accident conditions. This impact is considered less than significant.

Hazardous materials used during construction and operational activities throughout the Study Area may expose nearby residents and local schools to toxic emissions. Electrical transformers and industrial products containing polychlorinated biphenyls (PCBs) and heavy metals, as well as persistent residual chemicals including pesticides, herbicides, and fertilizers, have the potential to pose a health and safety risk via accidental release or misuse in the Study Area (the reader is referred to Section 5.13, Hydrology and Water Quality, regarding water quality and pesticide, herbicide, and fertilizer concerns). The potential for exposure to toxic air contaminants is addressed in Section 5.7, Air Quality.

Development associated with any of the three of the Equal-Weight Alternatives could involve the storage, use, and transport of hazardous materials (e.g., gasoline fuels, demolition materials, asphalt, lubricants, toxic solvents, pesticides, and herbicides) during construction, demolition, and landscaping activities and operations. In addition, certain commercial uses, including water treatment plants, swimming pool facilities, gas stations, and dry cleaners that store and use hazardous materials, could pose a potential hazard to the environment.

The Cortese List, prepared pursuant to Government Code Section 65962.5 by the California Department of Toxic Substances Control, lists 3 sites in the Study Area. Also, the Regional Water Quality Control Board has listed several leaking underground storage tank sites in the Study Area (see Table 5.12-2). If underground storage tanks (USTs) are discovered during any phase of a project, removal is required prior to additional site preparation or development activities (California State Water Resources Control Board Underground Storage Tank Program and California Health and Safety Code Section 25281, et seq.). All UST removal and remediation efforts must comply with the Stanislaus County Department of Environmental Health standards. If discovered, the tanks would require removal prior to any development activities. If subsurface contamination occurred as a result of tank leakage or overfilling, the contamination would require assessment and remediation in compliance with Stanislaus County Department of Environmental Health regulations.

As discussed under Impact 5.12-1, the transportation of hazardous materials on area roadways is regulated by the CHP, U.S. Department of Transportation (Hazardous Materials Transportation Act), and Caltrans, and use of these materials is regulated by the DTSC (22 Cal. Code of Regulations Section 66001, et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with local, state, and federal regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. All existing and future projects in the Study Area would be required to comply with federal,

state, and local regulations regarding the handling, transportation, disposal, and cleanup of hazardous materials.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize impacts relating to the accidental release of hazardous materials, including:

- HS-3.6 Fire prevention.** The City shall require property owners to remove fire hazards, including vegetation, hazardous structures and materials, and debris, as directed by the Fire Department.

- HS-3.8 Testing of hazardous areas.** In cooperation with the Stanislaus County Health Department, the City shall require testing for contamination in areas suspected as potentially hazardous and shall require that remediation of hazardous areas takes place prior to development.

- HS-4.1 Emergency response plan.** The City shall maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.

- HS-4.2 Emergency access routes.** The City shall identify emergency access routes and shall ensure that they are kept free of traffic impediments. Emergency access and evacuation routes shall be maintained for areas east and west of the railroad right-of-way.

- HS-4.4 Siting of emergency facilities.** Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.

- HS-6.3 Coordination.** The City shall coordinate with the California Highway Patrol, the Stanislaus County Department of Environmental Health Services, the County Sheriff's Department, and all other appropriate local, state and federal agencies in hazardous materials route planning, notifications and incident response, to ensure appropriate first response to hazardous material incidents.

- HS-6.4 Avoidance.** The City shall seek to avoid and minimize exposure of sensitive land uses to potentially hazardous emissions along truck routes and rail lines which may be used by surface vehicles and rail cars carrying hazardous or toxic substances. These truck routes include Interstate 5, State Highway 33, and Las Palmas Avenue. Rail corridors include the two primary lines running north-south through Patterson.

- HS-6.5 Management of hazardous materials.** The City shall regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored

liquids caused by possible rupture or collapse, and may request applicants to have an emergency response plan.

- HS-6.6 Industrial facilities.** The City shall work with responsible agencies to ensure that all industrial facilities are constructed and operated in accordance with the most current safety and environmental protection standards.
- HS-6.7: Storage.** Industries that store and process significant quantities of hazardous or toxic materials shall provide a buffer zone between the installation that houses such substances and the property boundaries of the facility sufficient to protect the public in the event of the release or leak of the materials.
- HS-6.8 Remediation.** The City shall work with other responsible agencies on efforts to clean up or contain identified soil or water contamination in the city limits.
- HS-6.9 Written confirmation of remediation.** The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation shall specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.
- HS-7.1 Coordination.** The City shall coordinate with the California Highway Patrol, the Stanislaus County Department of Environmental Health Services, the County Sheriff's Department, and all other appropriate local, state and federal agencies in hazardous materials route planning, notifications and incident response, to ensure appropriate first response to hazardous material incidents.

Compliance with existing federal, State and local regulations, along with the policies listed above, will reduce potential impacts associated with the accidental release of hazardous materials to a **less than** significant level.

Additional Mitigation

None required.

Additional Mitigation

None required.

Development of Land with Environmentally-Persistent Pesticides

Impact 5.12-3 The Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives would accommodate urban land uses within both the 20-year and 40 year buildout growth boundaries that would potentially expose construction workers and future residents to potentially hazardous concentrations of environmentally-persistent pesticides (e.g., DDT, toxaphene). This impact is considered potentially significant.

The surface and shallow-surface soils in the Study Area that historically have been utilized for intensive agricultural production may contain residual concentrations of environmentally-persistent pesticides or heavy metals (lead or arsenic) above adopted human health thresholds. Chlorinated pesticides, such as DDT and toxaphene, were extensively used throughout California farmlands prior to their prohibition in the mid-1970s. The U.S. Environmental Protection Agency, Region IX, has developed Risk-Based Screening Levels (RBSLs) for toxic compounds in soil for residential and commercial properties. The RBSLs are health risk standards that have been developed for a wide range of toxic compounds, including volatile organic compounds, metals, semi-volatile organic compounds, and pesticides. Stanislaus County Department of Environmental Health Services applies RBSLs to clean-up sites when reviewing site remediation and development proposals. This impact is considered significant given the historical agricultural use of many areas in the Study Area, but can be mitigated to a level that is less than significant through the application of RBSL cleanup targets to former agricultural properties and the use of common remediation techniques.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize impacts relating to the remediation of former agricultural properties, including:

- HS-6.5 Management of hazardous materials.** The City shall regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse, and may request applicants to have an emergency response plan in accordance with federal Spill Prevention, Control and Counter-measure (SPCC) regulations.
- HS-6.7: Storage.** Industries that store and process significant quantities of hazardous or toxic materials shall provide a buffer zone between the installation that houses such substances and the property boundaries of the facility sufficient to protect the public in the event of the release or leak of the materials.
- HS-6.8 Remediation.** The City shall work with other responsible agencies on efforts to clean up or contain identified soil or water contamination in the city limits.
- HS-6.9 Written confirmation of remediation.** The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City

approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation shall specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.

Additional Mitigation

Implementation Measures

- HS-10 Project applicants shall develop and implement a Soil Sampling and Analysis Plan to determine the presence and extent of any residual herbicides, pesticides, and fumigants on currently or historically-farmed land in agricultural areas that would be disturbed during construction of the Proposed Project. The Plan shall be prepared in consultation with the Stanislaus County Department of Environmental Health Services and the work shall be conducted by an appropriate California-licensed professional and samples sent to a California Certified laboratory. At a minimum, the Plan shall document the areas proposed for sampling, the procedures for sample collection, the laboratory analytical methods to be used, and the pertinent regulatory threshold levels for determining proper excavation, handling, and, if necessary, treatment or disposal of any contaminated soils. The Plan shall be submitted to the City of Patterson and Stanislaus County Department of Environmental Health Services for review and approval at least 60 days before construction. Results of the laboratory testing and recommended resolutions for excavation, handling, dust control, and treatment/disposal of material found to exceed regulatory requirements shall be submitted to the City prior to construction.

The recommended policies and implementation measures will reduce impacts related to pesticide exposure to a less than significant level.

Airport Operations

Impact 5.12-4 Each of the Equal-Weight Alternatives designates areas for urban development in the vicinity of the Patterson Airport and the Crows Landing Air Facility within both the 20-year and 40 year buildout growth boundaries which may expose people or property to hazards associated with aircraft operations. This impact is considered less than significant.

As discussed above, the Study Area is subject to two airport land use plans: the Patterson Airport and the Crows Landing Naval Airfield. The land use restrictions for each adopted plan were taken into consideration in each of the Equal-Weight alternatives. Appropriate land uses and densities were chosen to be consistent with the restrictions of each airport land use plan. Future development within each airport plan area must be consistent with, and comply with the restrictions associated with, the applicable airport plan.

Compact Development Alternative. Figure 5.12-4 shows the adopted airport land use plans for the Patterson Airport and the Crows Land Airfield in relation to the land use designations recommended by the Compact Development alternative within both the 20-year and 40 year buildout growth boundaries. As shown on Figure 5.12-4, the Compact Development Alternative designates land for Neighborhood Village development south of the City to Elfers Road. A portion of this area lies within Safety Zone 4 for

the Crows Landing Airfield. A review of the restrictions provided in Table 5.12-3 indicates that residential and commercial development is consistent with this safety zone.

The Compact Development alternative also designates additional land for industrial, commercial and Neighborhood Village development to the north and west of the Patterson Airport. A comparison of these land uses with the compatibility table provided in Table 5.12-3 indicates that these uses are consistent with the airport land use plan for the Patterson Airport.

Jobs Emphasis and PC Environmental Review Alternatives. The Jobs Emphasis and PC Environmental Review Alternatives designate land for additional residential development to the south of the City and north of the Delta Mendota Canal within both the 20-year and 40 year buildout growth boundaries. As shown on Figures 5.12-5 and 5.12-6 a portion of the land designated by these plans for Estate Residential development lies in safety zones 3 and 4. According to Table 5.12-3, rural residential development of 10 acres or more is considered a conditionally approvable use in Zone 3, and residential development up to multi-family densities is considered a compatible use in Zone 4.

The Jobs Emphasis and PC Environmental Review alternatives also designate additional land for industrial and Neighborhood Village development north of the Patterson Airport. Table 5.12-3 indicates that these uses are consistent with the adopted airport land use plan for the Patterson Airport.

Draft Policy Document Response

The Draft Policy Document provides the following language for the definition of the Estate Residential land use category:

This designation provides for the development of large-lot single family detached homes, secondary units, public and quasi-public uses, and similar and compatible uses. Residential densities shall be in the range of one dwelling unit per 0.5 acres up to one dwelling unit per 3 acres except for parcels subject to the safety or noise restrictions of an adopted Airport Land Use Plan in which case the minimum parcel size shall be 10 acres. This designation assumes an average of 3.00 persons per dwelling unit.

Thus, within an area governed by an applicable Airport Land Use Plan, the minimum parcel size is 10 acres which is Conditionally Approvable in Zone 3. In addition, the draft Policy Document recommends the following policies.

Policies

- LU-9.1 Airport land use plans.** The City shall continue to ensure that amendments to the General Plan are consistent with applicable adopted airport land use plans.
- LU-9.2 Development within airport land use plan areas.** The City shall ensure consistency with the development restrictions associated with the applicable Airport Land Use Plan for the Crows Landing Airfield by employing strategies that may include (but are not limited to), the following:
- Requiring the clustering of residential lots beyond airport land use restriction areas;
 - Applying zoning regulations to establish a minimum residential parcel size consistent with the applicable land use restrictions;
 - Requiring land within airport restricted areas to be designated as open space or parks;

- d. Other strategies consistent with the purpose and intent of the Airport Land Use Plan;

With the above recommendations of the draft Policy Document, all of the Equal-Weight Alternatives are consistent with the applicable airport land use plans for the Patterson Airport and the Crows Landing Airfield. Consistency impacts are considered **less than significant**.

Consistency with the ALUP for the Crows Landing Airfield

Impact 5.12-5 The Equal-Weight Alternatives may be inconsistent with the draft Airport Land Use Plan for the Crows Landing Airfield. This impact is considered **potentially significant**.

As discussed previously, a draft update of the Airport Land Use Plan for Crows landing has been prepared and is currently under review by the Airport Land Use Commission. The draft Plan sets forth revised safety compatibility requirements as shown on Figure 5.12-2 and revised land use compatibility standards as summarized on Table 5.12-4. Although the revised Plan has not been adopted, consistency is assessed for each of the Equal-Weight Alternatives below.

Compact Development Alternative

The Compact Development Alternative designates land for urban development to the south of the City to Elfers Road. As shown on Figure 5.12-7 the areas designated for urban uses lie outside the safety zones recommended by the draft ALUP.

Jobs Emphasis and Planning Commission Environmental Review Alternatives

Figures 5.12-8 and 5.12-9 show the recommended land uses for the Jobs Emphasis and PC Environmental Review alternatives, respectively, in relation to the safety zones provided in the Draft ALUP for Crows Landing. As Figures 5.12-8 and 5.12-9 show, the areas designated for urban development within both the 20-year and 40 year buildout growth boundaries lie outside the recommended safety zones.

Each of the Equal-Weight Alternatives are consistent with safety standards recommended by the draft Airport land Use Plan for Crows Landing. For these reasons, the impact is **less than significant**.

Additional Mitigation

None required.

Figure 5.12-4: Adopted Airport Land Use Plan Safety Zones in Relation to the Compact Development Alternative

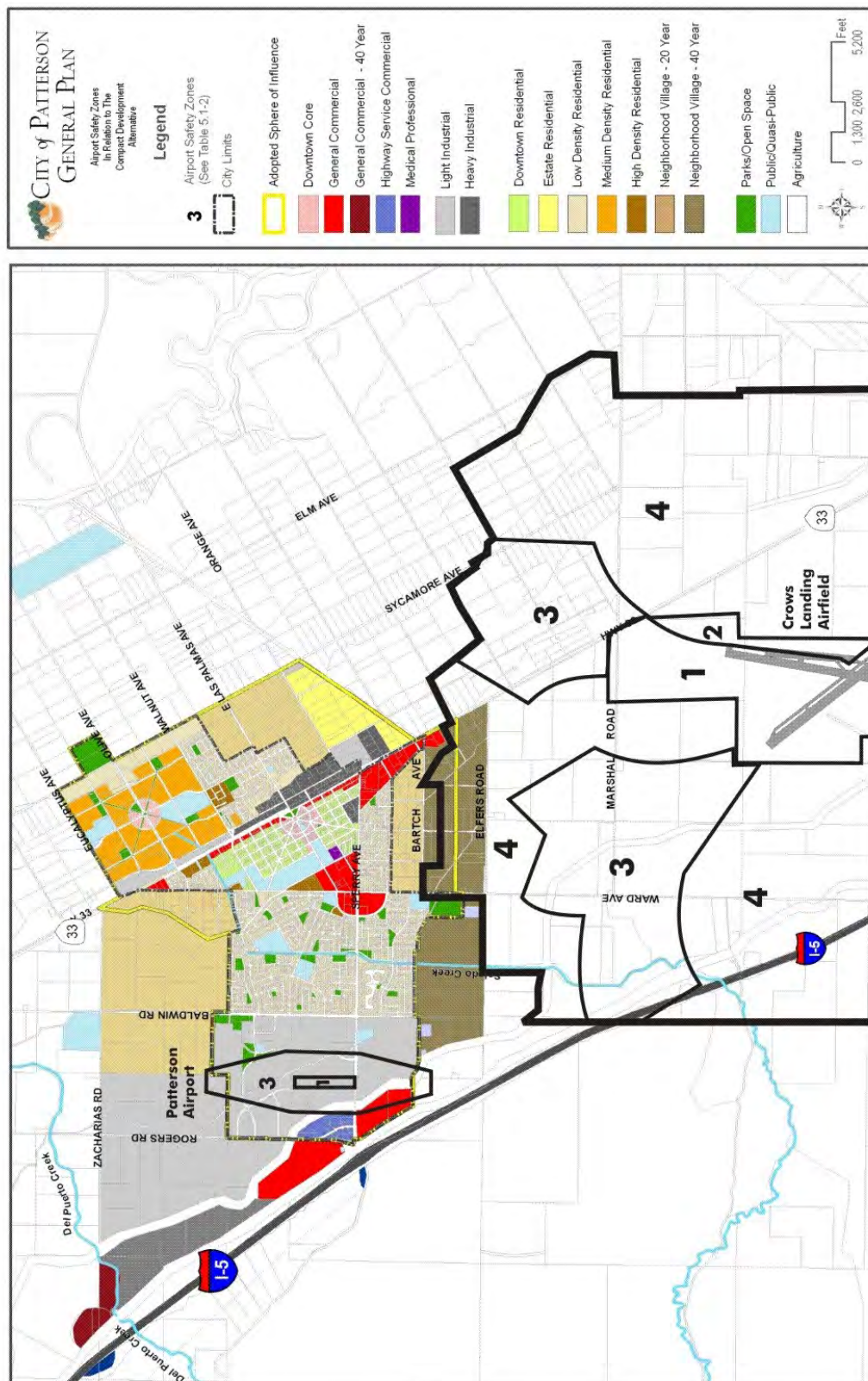


Figure 5.12-5: Adopted Airport Land Use Plan Safety Zones in Relation to the Jobs Emphasis Alternative

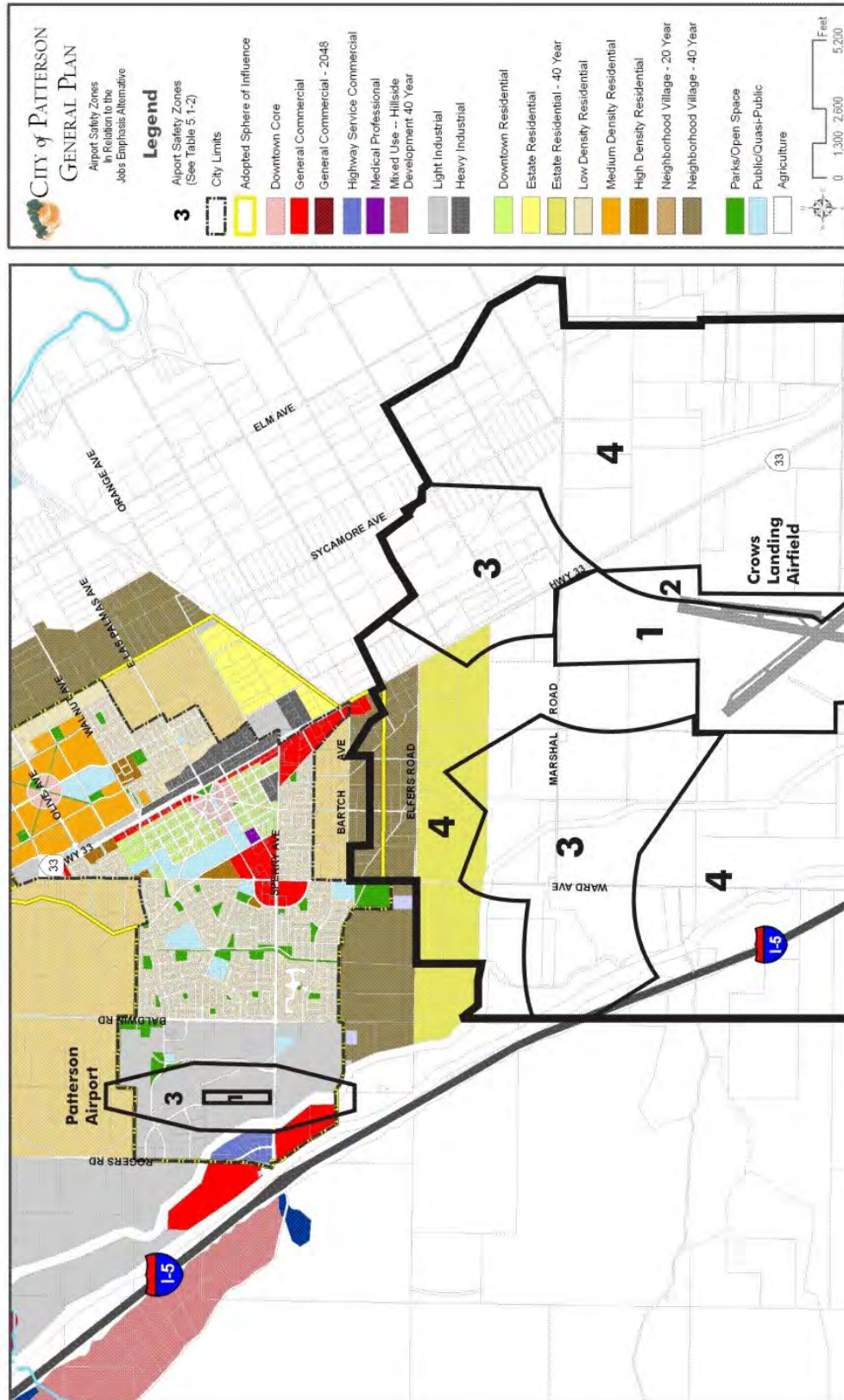




Figure 5.12 -7: Compact Development Alternative in Relation to Draft Airport Safety Zones

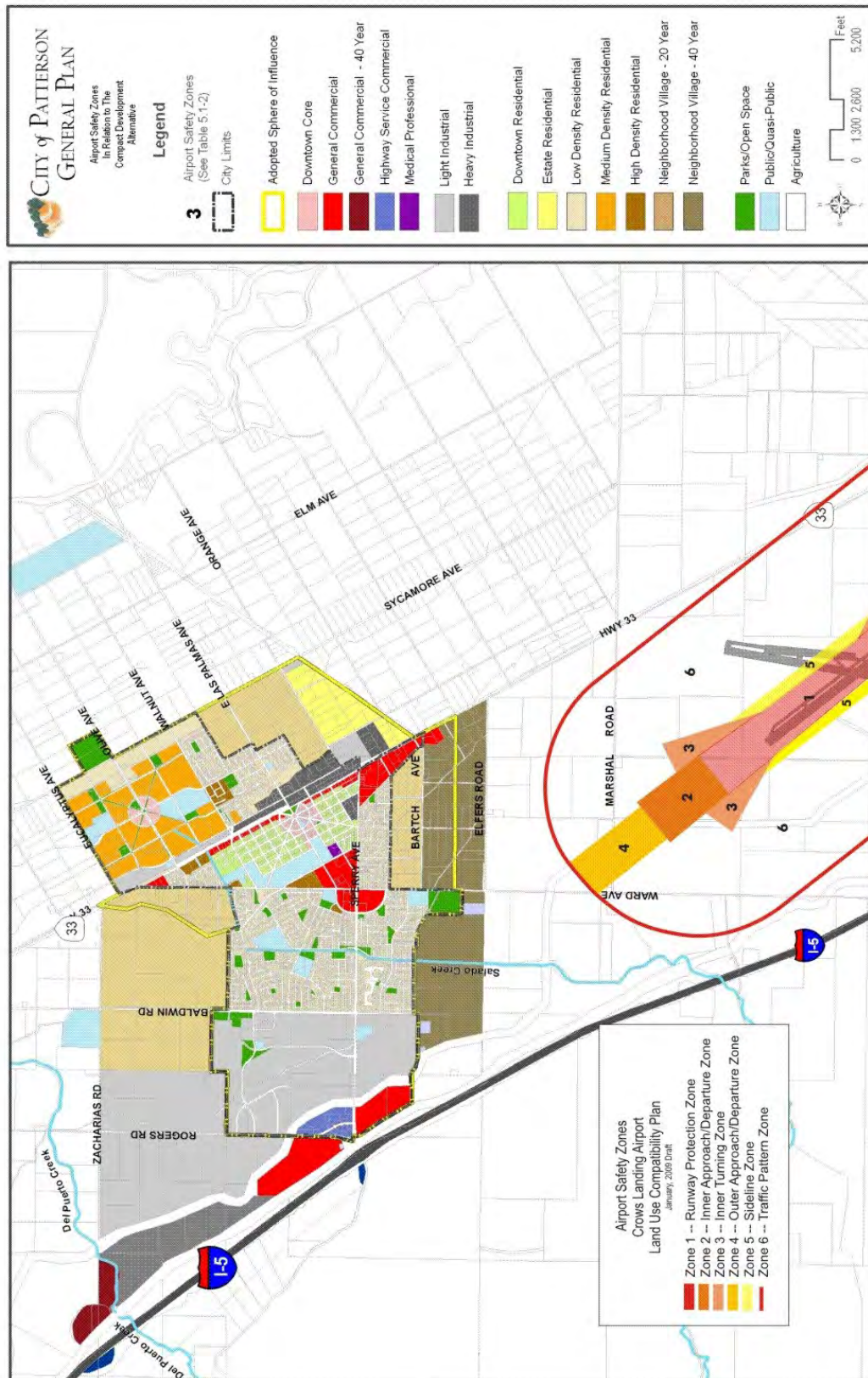


Figure 5.12-8: Jobs Emphasis Development Alternative in Relation to Draft Airport Safety Zones

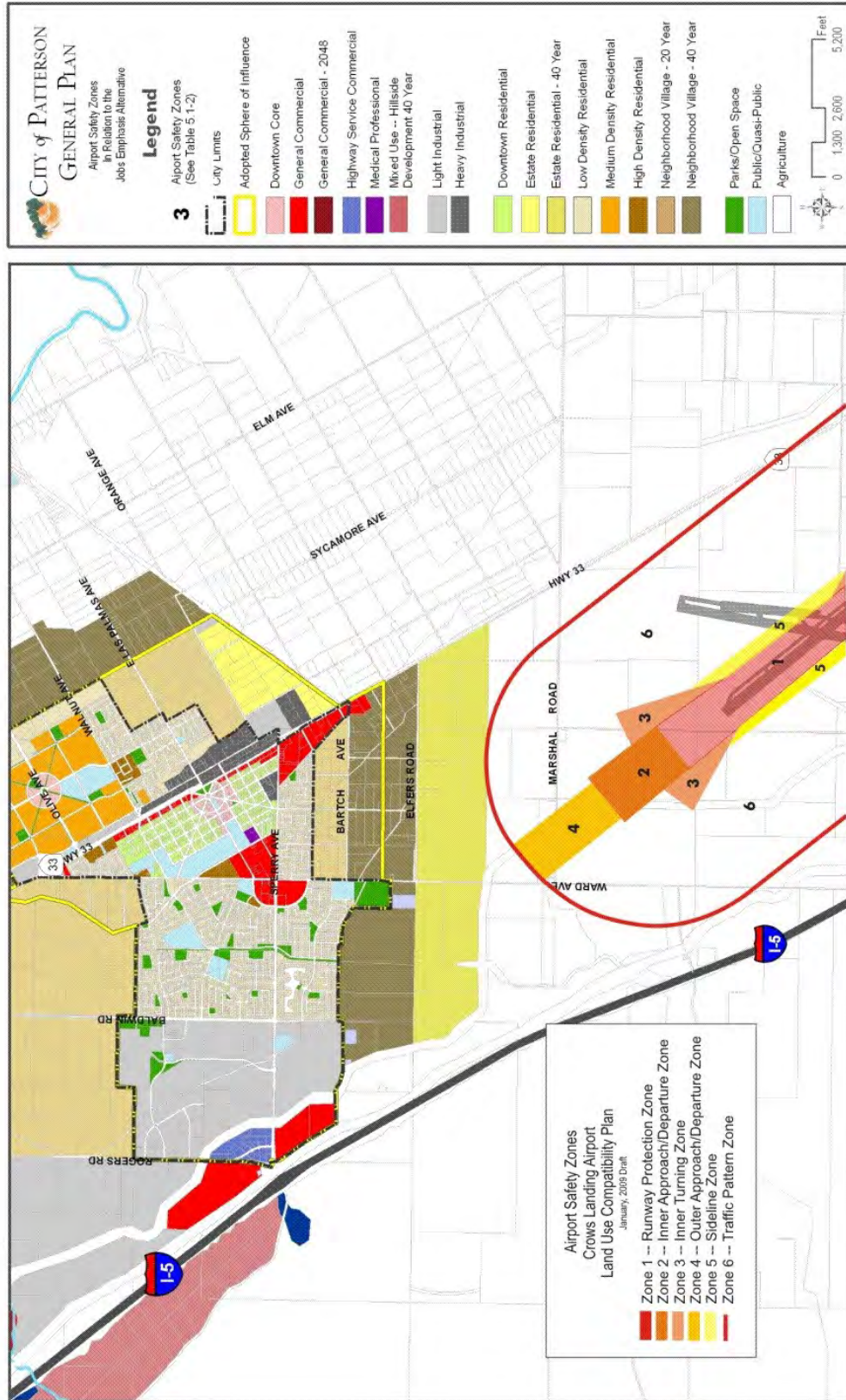
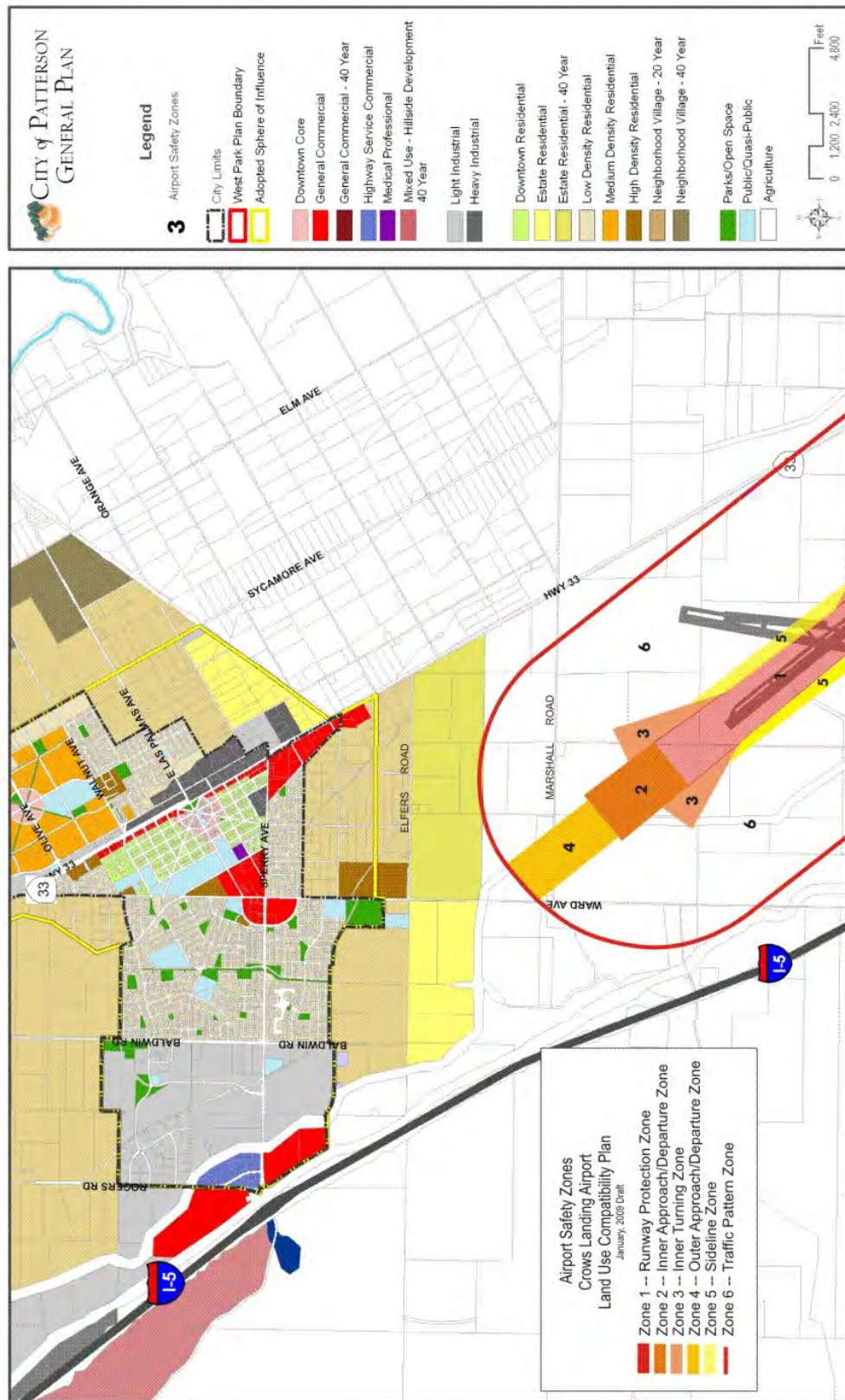


Figure 5.12-9: PC Environmental Review Alternative in Relation to Draft Airport Safety Zones



Interference with an Adopted Emergency Response or Evacuation Plan

Impact 5.12-6 Proposed land uses and/or changes in land use patterns that would occur as a result of the Compact Development, Jobs Emphasis or PC Environmental Review Plan within both the 20-year and 40 year buildout growth boundaries would not interfere with adopted emergency response or evacuation plans. This impact is considered less than significant.

The City's Emergency Operations Plan was adopted in 2009. The Plan sets forth procedures to follow in for each phase of an emergency event. As described in the Plan, Emergency management activities during peacetime and national security emergencies are often associated with the four federally defined phases:

- Mitigation;
- Preparedness;
- Response; and
- Recovery.

Mitigation efforts occur both before and after emergencies or disasters. Post-disaster mitigation is actually part of the recovery process. This includes eliminating or reducing the impact of hazards that exist within the City of Patterson. Mitigation efforts may include:

- Amending local ordinances and statutes, such as zoning ordinances, building codes, and other enforcement codes;
- Initiating structural retrofitting measures;
- Assessing tax levees or abatements;
- Emphasizing public education and awareness; and
- Assessing and altering land use planning.

The EOP uses 2009 as the baseline conditions and sets forth a program for maintaining an effective emergency response as the City continues to grow and is not specific to a particular population. As the City develops in accordance with any of the Equal-Weight Alternatives, the Emergency Operations Plan may need to be amended to address the pattern of urban development and the particular characteristics of that development.

Draft General Plan Policy Response

None of the Equal-Weight Alternatives would alter the City's overall land use pattern or land use designations to such an extent that it would conflict with the City's emergency response and/or evacuation plans.

The roadway improvements recommended by the Circulation Diagram (Figure 3.0-9) incorporate the recommendations of the City Fire Department and Police Department with regard to emergency access to all parts of the Study Area. Where necessary, additional fire and police sub-stations will be provided to serve the growing populations accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Alternatives within both the 20year and 40 year buildout growth boundaries. The reader is referred to Section 5.3 Public Services for a discussion of impacts relating to police protection and fire protection.

Implementation of the proposed roadway system would improve city roadway connectivity, allowing for better emergency vehicle access to residences as well as evacuation routes for area residents.

In addition, the draft Policy Document includes several policies that directly address the management of development to minimize impacts relating to the accidental release of hazardous materials, including:

Policies

- HS-4.1 Emergency response plan.** The City shall maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.
- HS-4.2 Emergency access routes.** The City shall identify emergency access routes and shall ensure that they are kept free of traffic impediments. Emergency access and evacuation routes shall be maintained for areas east and west of the railroad right-of-way.
- HS-4.4 Siting of emergency facilities.** Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.

Implementation Measures

- HS-3** The City shall maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.
- HS-4** The City shall periodically conduct tests of its emergency response procedures.

Additional Mitigation

None required.

With the adoption and implementation of the policies and implementation measures, this impact will be less than significant.

Risk of At-Grade Railroad Crossing Accidents

Impact 5.12-7 Increased rail operations over time, combined with an increase in population, employment, motor vehicle, pedestrian and bicycle traffic associated with the Compact Development, Jobs Analysis or PC Environmental Review Plans within both the 20-year and 40 year buildout growth boundaries, will increase the risk associated with at-grade railroad crossings. This impact is considered potentially significant.

Future train traffic through the Study Area could increase from 1-2 trains per day to as many as six per day as the Westpark project builds out over the next twenty or more years.²

As discussed in Section 5.2 (Population, Housing and Employment), each of the Equal-Weight Alternatives will accommodate a considerable increase in population and employment in the City through the year 2050, as summarized below in Table 5.12-5.

Table 5.12-5: Existing and Projected Population and Employment					
Alternative	Existing Population (2009) ¹	2030 Population ²	2050 Population ²	2009 Employment ³	2050 Employment ²
Compact Development	21,229	46,360	57,510	3,914	25,374
Jobs Emphasis	21,229	47,831	66,673	3,914	28,884
PC Env. Review Plan	21,229	64,389	75,863	3,914	28,826
Notes:					
1. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009					
2. CMCA, 2009					
3. City of Patterson, 2009					

In addition, total motor vehicle trips generated by each of the Equal-Weight Alternatives will result in an increase in the number of vehicles on City roadways and the potential hazard associated with at-grade railroad crossings. Total trip generation for each of the Equal-Weight Alternatives is provided in Table 5.12-6 within the 20-year and 40 year buildout growth boundaries.

Table 5.12-6: Total Trip Generation From Land Use Designated by the Equal-Weight Alternatives			
Growth Boundary/Planning Timeframe	Total Trips By Alternative		
	Compact Development Alternative	Jobs Emphasis Alternative	PC Environmental Review Alternative
20-Year Growth Boundary	32,571	49,255	41,485
40 year buildout Growth Boundary	43,635	63,500	53,388
Source: TJKM, 2010			

There are 16 at-grade railroad crossings within the Study Area where roadways cross the Union Pacific Railroad Tracks as summarized in Table 5.12-7, which also shows the warning system in place. Passive controls include traffic signs and pavement markings which identify and direct attention to the location of a highway-rail grade crossing. For example, the “crossbuck sign” indicates the location of a railroad

² Notice of Preparation of a Draft Environmental Impact Report for the West Park Specific Plan Project, June 18, 2008

crossing to motorists, bicyclists and pedestrians, but does not indicate that a train is approaching. A stop sign is a passive control that can be used to encourage motorists to "stop, look and listen" - or at least, to stop. Active control systems inform motorists, bicyclists and pedestrians of the approach or presence of a train. Flashing light signals, bells, and crossing gates are examples of active controls. These both indicate the existence of a railroad crossing, and also, when activated, provide warning of an approaching train. Active devices are rarely used alone; they are most often combined with passive devices, such as pavement markings and advance warning signs.

Safety issues associated with at-grade crossings include queuing, gate drive-around and pedestrians.

Queuing can be addressed by:

- The timing of traffic signals;
- The provision of storage behind the crossing;
- Signage and "keep clear" street marking;
- Temporary traffic controls; and
- Relocation of the sources of queuing

Gate drive around can be addressed by:

- Installing medians at crossings;
- Limiting turning movements during signal preemption by a train;

Pedestrian and bicycle issues can be addressed by:

- Providing fencing and barriers between walkways and tracks;
- Installing warning devices;

**Table 5.12-7: At Grade Railroad Crossings Within
the General Plan Study Area**
(see Figure 5.12-10)

Cal PUC No.	DOT No.	Street	Warning
108BA-106.00	752510E	Olive Av	Gates
108BA-106.50	757236K	M St	Gates
108BA-107.00	752512T	Las Palmas Av	Gates
108BA-107.20	752513A	E St	Passive
108BA-107.60	752515N	Sperry Rd	Gates
108BA-107.70-C	752517C	S 3rd St	Passive
108BA-107.74-C	752514G	1st St	Passive
108BA-107.75-CD	765984C	Alley	Passive
108BA-107.80-C	752518J	S 4th St	Passive
108BA-102.20	752508D	Rogers Rd + Sr 33	Gates
108BA-103.80	752506P	Baldwin Rd	Passive
108BA-105.20	752504B	Zacharias Rd	Passive
108BA-105.70	752503U	State 33	Gates
108BA-108.50	752519R	Almond Av	Passive
108BA-109.00	752520K	Pomelo Av	Passive
108BA-109.90	752522Y	Marshall Rd	Gates
Source: California Public Utilities Commission inventory database of at-grade crossings, December, 2008			

Rail operations in Stanislaus County have reported relatively few accidents involving at-grade crossings. Table 5.12-8 provides a summary of accidents at rail crossings in the County from all train traffic since 1998. According to the California Public Utilities Commission,³ there are 283 at-grade rail crossings in Stanislaus County. As Table 5.12-8 shows, there were a total of 34 reported accidents during the eleven-year period of 1998 to 2009 Countywide, which resulted in eight fatalities. Table 5.12-9 provides a summary of accidents involving at-grade crossings within the Study Area between 1975 and 2009. As Table 5.12-9 shows, there have been four reported accidents during this 34-year period which resulted in one fatality.

³ California Public Utilities Commission inventory database of at-grade crossings, December, 2008

Figure 5.12-10: At Grade Rail Crossings in the Study Area

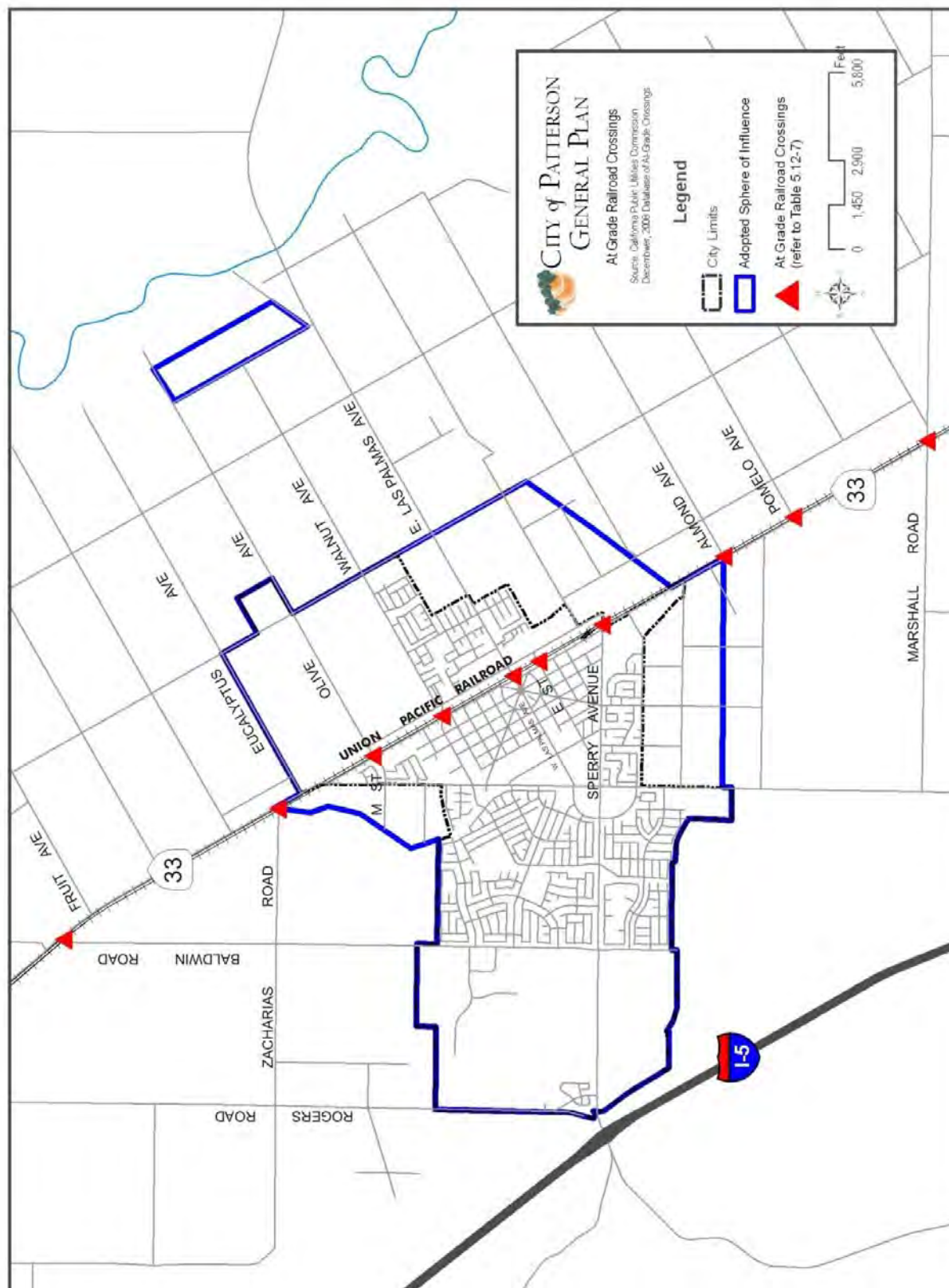


**Table 5.12-8: Rail Accidents At Grade Crossings in Stanislaus County
1998 – 2009**

Year	Mode of Travel								
	Car	Van	Bus	Truck	Pedestrian	Total	Fatalities	County Population	Accidents Per 100,000 Population
1998	3	1	1	0	0	5	0	429,054	1.16
1999	1	1	0	4	0	6	0	436,130	1.39
2000	0	0	0	2 ¹	0	2	1	446,997	0.44
2001	0	0	0	0	0	0	0	458,557	0
2002	0	0	0	1	1 ¹	2	2	472,260	0.42
2003	1	0	0	1	0	2	0	483,824	0.41
2004	2 ¹	0	0	0	1 ¹	3	3	493,646	0.60
2005	2 ¹	0	0	1	0	3	0	503,157	0.59
2006	3	0	0	2	0	5	0	511,617	0.97
2007	0	0	0	4 ¹	0	4	1	517,837	0.772
2008	0	0	0	1 ¹	0	1	0	522,313	0.19
2009	0	0	0	0	1 ¹	1	1	526,383	0.19
Total:	12	2	1	16	3	34	8	+97,329	

Source: Federal Railroad Authority, 2010
California Department of Finance, <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2009/documents/2009%20E-5a%20Internet%20Version.xls>

Notes:
1. Resulted in one or more fatalities.

Table 5.12-8 suggests that the rate of accidents per 100,000 in population per year involving at-grade rail crossings has remained fairly constant since 1998, with a high of 1.39 accidents per 100,000 in 1999 and low of zero in 2001. During the same period, the County population grew by about 97,000 residents.

**Table 5.12-9: Reported Rail Accidents Associated With At-Grade Crossings
In The General Plan Study Area, 1975 - 2009**

Crossing	Year	Description of Accident	Injuries or Fatalities	Hazardous Materials Released
Highway 33	1975	Car stalled on tracks struck by train.	None	None
First Street	1985	Truck with trailer struck by slow moving train	None	None
"E" Street	1990	Train struck by car crossing tracks	None	None
Pamelo Avenue	2005	Pickup truck failed to stop at grade crossing.	1 fatality	None

Source: Federal Railroad Authority, 2010

When considering the safety of at-grade crossings it is important to distinguish between the *hazard* associated with the crossings and the actual *risk*. When applying the definitions discussed in the Setting section, the hazard associated with the crossings is an accident involving a train and a motor vehicle, pedestrian or bicycle. The risk, however, is the likelihood that an accident will occur. Although the hazard associated with at-grade railroad crossings is likely to increase over time as population and employment within the City grows, the rate of accidents per 100,000 in population (the risk) will likely exhibit similar characteristics as over the 1998 to 2009 timeframe and remain low.

As seen in Table 5.12-8 and 5.12-9 the historical risk associated with at-grade railroad crossings has been relatively low within the Study Area. While the potential increase in train trips in the future is large when compared with current conditions, the risk associated with trains passing through the City will remain low.

Draft General Plan Policy Response

The draft General Plan includes the following policies to address the management of development to minimize hazards associated with at-grade railroad crossings:

Policies

HS-7.1 At-grade railroad crossings and rail corridors. The City shall initiate, and collaborate in, safety and design improvements at existing railroad-at-grade crossings and along rail corridors. Strategies to be considered include (but are not limited to) the following:

- a. Installation of grade separations at crossings where feasible;
- b. Improvements to warning devices at existing highway-rail crossings;
- c. Installation of additional warning signage;
- d. Improvements to traffic signaling at intersections adjacent to crossings, such as traffic preemption;
- e. Installation of median separation to prevent vehicles from driving around railroad crossing gates;
- f. Where soundwalls, landscaping, buildings would be installed near crossings, maintaining the visibility of warning devices and approaching trains;
- g. Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains;
- h. Installation of pedestrian-specific warning devices and channelization;
- i. Construction of pull-out lanes for buses and vehicles transporting hazardous materials;
- j. Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the right-of-way;
- k. Elimination of driveways near crossings;
- l. Increased enforcement of traffic laws at crossings;
- m. Rail safety awareness to educate the public about the hazards of highway-rail grade crossings;

HS-7.2 Referral to PUC. The City shall refer projects with the potential to adversely impact existing or proposed railroad crossings to the California Public Utilities Commission for recommendations regarding rail safety.

In addition, the Preliminary Circulation Diagram recommends roadway and intersection improvements which are aimed at maintaining a safe, efficient circulation system for motor vehicles throughout the City. By providing multiple routes between the east and west sides of the tracks, and maintaining an acceptable level of service, the potential hazards associated with at-grade crossings will be less than significant.

Additional Mitigation

None are required.

Trains Blocking Railroad Crossings during an Emergency

Impact 5.12-8 Future residents and property accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Alternatives within both the 20-year and 40 year buildout growth boundaries could be isolated from emergency services as a result of a train blocking one or more of the at-grade railroad crossings. This impact is considered less than significant.

Each of the Equal-Weight Alternatives designates land for additional development on both the east and west sides of the existing railroad right-of-way. A train parked or stalled on the tracks by an accident could result in areas on the east side of the tracks being isolated from emergency services originating at the existing police station located at 33 S. Del Puerto Avenue and the Fire Station located at 344 W. Las Palmas Avenue.

For a discussion of impacts associated with fire protection staffing and facilities the reader is referred to Section 5.3 Public Services. Discussions with the police and fire departments suggest that additional substations for emergency personnel and equipment will be needed to serve the Compact Development, Jobs Emphasis and PC Environmental Review alternatives. To address the potential isolation of the east side of the City from emergency services, land has been designated for a fire station within The Villages of Patterson project approved in 2006. In addition, the draft Policy Document recommends the following policies:

- HS-4.2 Emergency access routes.** The City shall identify emergency access routes and shall ensure that they are kept free of traffic impediments. Emergency access and evacuation routes shall be maintained for areas east and west of the railroad right-of-way.
- HS-4.4 Siting of emergency facilities.** Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.

Implementation Measures

- HS-2** The Fire Department shall endeavor to inspect commercial and industrial buildings annually in conjunction with issuance and renewal of business licenses.

- HS-3 The City shall maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.
- HS-4 The City shall periodically conduct tests of its emergency response procedures.

Additional Mitigation

None required.

This impact will be less than significant.

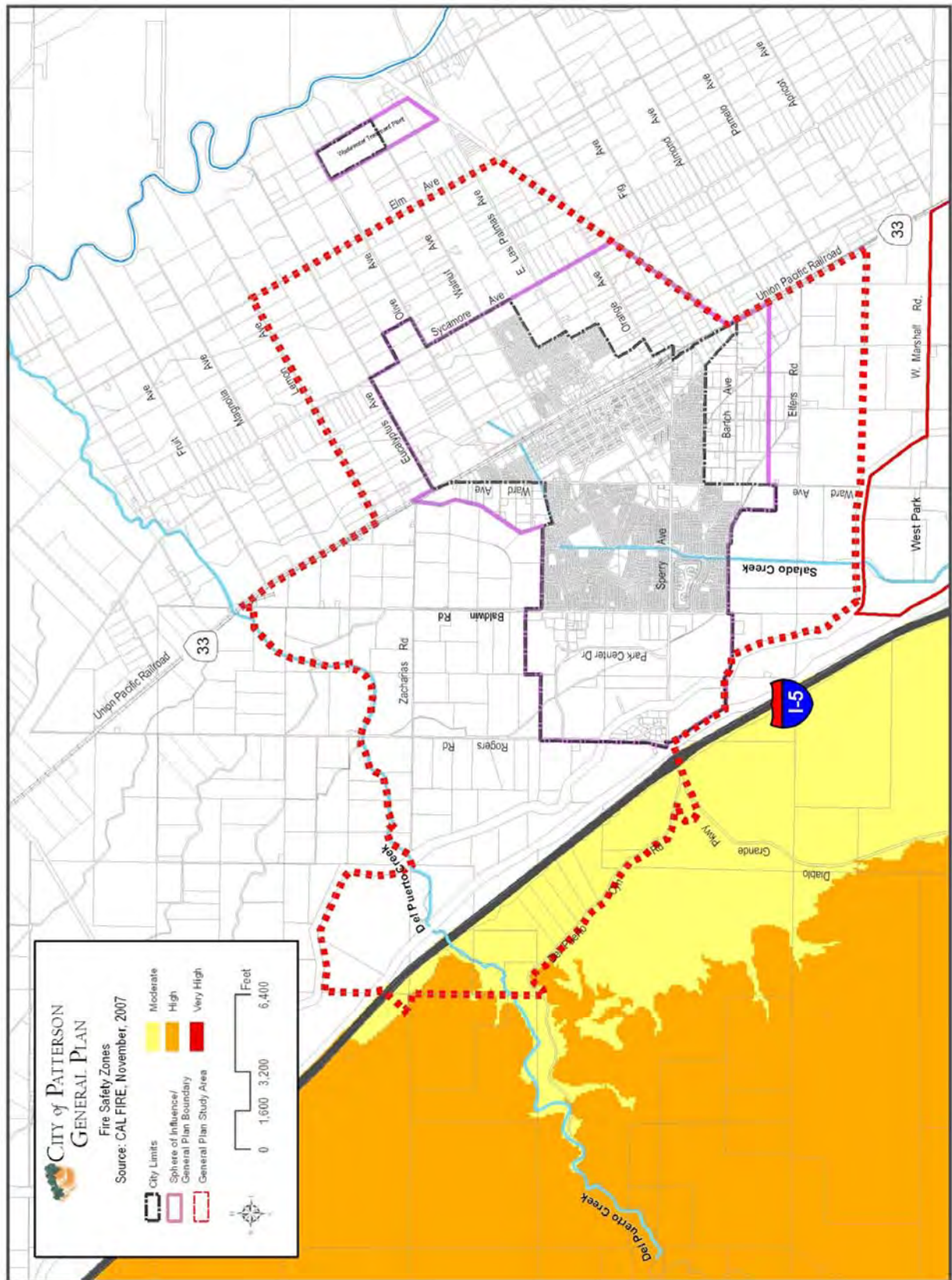
Risk Associated With Wildland Fires

Impact 5.12-9 Development west of Interstate 5 in the foothills of the Diablo Range accommodated by the Jobs Emphasis and PC Environmental Review Alternatives within the 40 year buildout growth boundary could place residents and property at risk from wildland fires. This impact is considered potentially significant.

The Jobs Emphasis and PC Environmental Review alternatives designated land west of Interstate 5 for Mixed-Use Hillside Development within the 40 year buildout growth boundary. According to the California Department of Forestry and Fire Protection, the area west of Interstate 5 within the Study Area is considered to be at "High" and "Moderate" risk to wildland fires, as shown on Figure 5.12-11.

Fire protection requirements necessary to serve each of the Equal-Weight Alternatives is discussed in Section 5.3, Public Services. As discussed in Section 5.3, the City of Patterson and the West Stanislaus Fire Protection District have a mutual aid agreement and share administrative duties. In addition, the California Division of Forestry operates a fire station on Sperry Avenue just west of Baldwin Road. Policies and implementation measures recommended by the General Plan, as discussed in Section 5.3, are aimed at maintaining an acceptable response time to all areas of the City, as contemplated by the Equal-Weight Alternatives. For the area west of Interstate 5, the fire chief has recommended an additional fire protection substation as well as a secondary vehicular access route in addition to Del Puerto Canyon Road. Together, with the recommendations from the fire chief along with enforcement of applicable fire protection building codes, the risk associated with wildland fires is considered less than significant.

Figure 5.12-11: Fire Hazard Zones



Draft Policy Document Response

Policies

- PS-6.1 Fire response time.** The City shall endeavor to achieve and maintain an overall fire insurance (ISO) rating of 5 or better. The goal for average response time for Priority 1 (emergency) calls shall be five minutes for 95 percent of the calls.
- PS-6.2 Location of stations.** Fire stations shall be strategically located to ensure optimal response time. The existence of physical barriers such as railroad tracks shall be an important siting consideration.
- PS-6.3 Fire Code requirements.** The City shall continue to apply the California Fire Code requirements for built-in fire suppression equipment in all new development.
- PS-6.4 Ratio of fire fighters to population.** The City shall endeavor to achieve and maintain a ratio of 1.0 firefighters per 1,000 in population.

Implementation Measures

- PS-8** The City shall continue to apply the California Fire Code requirements for built-in fire suppression equipment in all new development.
- PS-9** The City shall periodically update its long-term Capital Improvements Programs (CIPs), including sewer, water, drainage, police and fire protection, and other facility improvements.
- PS-11** The City establish and collect development impact fees as needed for public services in accordance with Government Code Section 66000, et seq.

With application of the above recommended policies and implementation measures impacts relating to wildland fires are considered **less than significant**.

Additional Mitigation

None required.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The setting for cumulative impacts includes the City and the unincorporated portions of the Study Area affected by each of the Equal-Weight Alternatives. Hazardous materials, human health, and safety impacts as described in CEQA Appendix G are generally site-specific and not cumulative by nature. The potential cumulative impacts due to the increased use of hazardous materials resulting from proposed development under any of the Equal-Weight Alternatives include, but are not limited to, air quality, noise, water quality, flooding, and fire, as well as exposure to multiple contaminants. The cumulative

impacts associated with affected resources, such as air and water, are analyzed in the additional topical sections of this EIR.

Cumulative Impacts

Cumulative Risk of Hazardous Materials

Impact 5.12-10 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development through 2050 will contribute to the cumulative increase in the use, storage, and transport of hazardous materials and the risk associated with these materials. This impact is considered cumulatively considerable.

Development accommodated by the Equal-Weight Alternatives could result in increased hazard-related impacts; however, these impacts would be specific to individual sites in the Study Area and are not tied to any regional (beyond the Study Area) hazard or contamination issues (the reader is referred to Section 5.7, Air Quality, regarding regional public health issues associated with air pollutants and toxic air contaminants). Policies of the Draft Policy Document would assist in reducing the impacts. Federal, state, and local regulations would determine appropriate land uses within the vicinity of airports affecting the Study Area. Anticipated development projects (e.g., residential, commercial, park, and recreational land uses) that would occur under any of the Equal-Weight Alternatives would also include, but not be limited to, public and utility extension projects, roadway widenings and extensions, intersection improvements, water system distribution improvements, and trail extensions. These proposed land use activities would not significantly increase human health or safety risks.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts will help mitigate regional impacts relating to hazards and hazardous materials. Cumulative impacts are considered less than cumulatively considerable.

Additional Mitigation

None required.

Cumulative Risk Associated With Aircraft Operations

Impact 5.12-11 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with regional development through 2050 may expose additional people and property to the hazards associated with aircraft operations at the Patterson Airport and the Crows Landing Airfield. This impact is considered less than cumulatively considerable.

As discussed under Impacts 5.12-5 and 5.12-6, development accommodated by the Equal-Weight Alternatives would increase the number of dwellings, businesses, schools, and other uses in the City which, together with other development in the region, will be exposed to an increased hazard of aircraft operations.

As discussed under impact 5.12-5, all three Equal-Weight Alternatives are consistent with the adopted Airport Land Use Plans for Patterson Airport and Crows Landing Airfield. In addition, as discussed under impact 5.12-6, all three Equal-Weight Alternatives are consistent with the December, 2009 draft Airport Land Use Plan for Crows Landing currently being considered by the County Airport Land Use Commission.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts under impacts 5.12-3 and 5.12-4 will mitigate cumulative impacts associated with aircraft operations. Cumulative impacts are considered **less than** cumulatively considerable.

Additional Mitigation

None required.

Emergency Response Plans

Impact 5.12-12 Proposed land uses and/or changes in land use patterns that would occur as a result of the Compact Development, Jobs Emphasis or PC Environmental Review Plan together with regional growth may interfere with adopted emergency response or evacuation plans. This is considered a less than significant impact.

As discussed under Impact 5.12-7 none of the Equal-Weight Alternatives will conflict with the City's adopted Emergency Operations Plan, which is recommended to be periodically reviewed and updated over time. Since the type and nature of hazards affecting the City and region are not likely to change over time, the procedures provided in the EOP would continue to apply. Should a previously unforeseen potential for emergency arise during the 20 year or 40 year buildout timeframes, the policies and implementation measures which require the periodic update of the EOP would ensure continued consistency.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts under impact 5.12-5 will mitigate cumulative impacts relating associated with consistency with emergency response plans. Cumulative impacts are considered **less than** cumulatively considerable.

Additional Mitigation

None required.

Cumulative Risk from Rail Operations

Impact 5.12-13 Increased rail operations, combined with an increase in population, employment, motor vehicle, bicycle and pedestrian traffic in the region will increase the risk associated with at-grade railroad crossing. This impact is considered cumulatively considerable.

As discussed under Impact 5.12-8, rail traffic may increase in the future along with the population and employment accommodated with any of the Equal-Weight Alternatives plus regional development. Together this will contribute to an increase in the potential exposure of motor vehicles, pedestrians and bicyclists to the hazard associated with at-grade rail crossings. However, as discussed under impact 5.12-8 although the hazard will increase, the overall risk associated with at-grade crossings is still expected to be low.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts under impact 5.12-8 will mitigate cumulative impacts relating to at-grade rail crossings. Cumulative impacts are considered **less than cumulatively considerable**.

Additional Mitigation

None required.

References

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- Environmental Data Resources, Inc., EDR Radius Map Report, August 14, 2009 and March 18, 2010.
- Federal Aviation Regulation (FAR) 49 Code of Federal Regulations (CFR) Part 77
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US Environmental Protection Agency National Priority List, March 2010

United States Code. 49 USC § 40103

5.13 HYDROLOGY AND WATER QUALITY

This section addresses impacts associated with drainage (including flooding) and water quality. This analysis is based in part on a study (City of Patterson General Plan Storm Drainage Study, June 2010) prepared by Boyle Engineering/AECOM which is provided in its entirety as Appendix 5.13. Impacts to water supply are addressed in Section 5.4 Water Supply and wastewater impacts are addressed in Section 5.13 Wastewater.

Environmental Setting

The Study Area is located in the Great Valley Geomorphic Province of California, more commonly referred to as the San Joaquin Valley. The San Joaquin Valley is made up largely of alluvial fans sourced from the Sierra Nevada Range to the east, the Coastal Range to the west, and to some degree the Tehachapi Mountains to the south. Weathering of these mountain ranges combined with surface water flows and flooding have resulted in accumulation of alluvial (river), lacustrine (lake), and marine (ocean) deposits throughout the San Joaquin Valley at extreme depths.

The Study Area is situated mostly on dry, treeless alluvial fans that drain east to the San Joaquin River. West of Interstate 5, the Study Area consists of the treeless foothills that form the eastern edge of the Diablo Range, while a riverine strip along the western bank of the San Joaquin River forms its northeastern edge. The Sacramento-San Joaquin Delta is 20 miles to the north, but the gentle gradient of the bottomlands produces meandering river courses, cutoff oxbows, and localized marshes. The only other significant drainage is Del Puerto Creek, an intermittent stream that exits the Diablo Range and flows northeast to the San Joaquin. The 1947 Orestimba 15 minute quadrangle shows that Black Gulch, an even smaller intermittent creek, debouched on the fans west of Patterson, and did not flow as far east as the San Joaquin River. Salado Creek formerly flowed to the San Joaquin to the south of the Study Area; it was realigned to run north into the Study Area in historic times.

Existing Drainage Features

The drainage within this region is characterized by a series of generally eastward-flowing creeks, which drain the Coast Range uplands to the west and eventually discharge to the San Joaquin River. These creeks create alluvial fans⁴ where they emerge from the foothills onto the valley floor. The project site is located at a topographically low point between the alluvial fans created by Salado and Del Puerto Creeks. Both Salado and Del Puerto Creeks eventually drain into the San Joaquin River.

Salado Creek is an intermittent stream with a drainage area of approximately 25 square miles west of Interstate-5 (Figure 5.13-1), (Watersheds of Salado and Del Puerto Creeks, Stanislaus County, California). Salado Creek flows through the Coast Range uplands in a steep well-defined channel and through the foothills in a moderately-defined and sometimes incised channel. Within about one-half mile of its emergence from the foothills, the creek crosses the Delta Mendota Canal (DMC) through an overchute structure. North of the DMC, Salado Creek flows through gently northward-sloping irrigated agricultural land and through the City of Patterson. Peak flows associated with Salado Creek are several magnitudes above the creek's channel carrying capacity. Peak flow rates have been reported to be approximately 600 cubic feet per second (cfs) for the 10-year rainfall return period and 2,800 cfs for the 100-year return period upstream of the Study Area where the creek crosses the California Aqueduct¹.

¹ Stoddard, 2001

The flow of Salado Creek into the Study Area is restricted by the capacity of the overshot flume across the DMC which has been rated at between 700 and 850 cfs.

Improvements to Salado Creek completed in 1998 by the City and Stanislaus County reduced the frequency of flooding along Salado Creek from approximately 1 in 4½ years to 1 in 8 years. Improvements to Salado Creek in the City have included enlargements of the channel, installation of some underground piped facilities and embankment construction between Sperry Road and the San Joaquin River. A 96-inch cast-in-place concrete pipeline (Salado Creek Pipeline) was installed from east of the Union Pacific Railroad line to the San Joaquin River. The design capacity of this system is dedicated to existing development in the City and upstream natural runoff flows. With these improvements, the capacity of Salado Creek between Sperry Road and the San Joaquin River was increased from the former capacity of approximately 300 cfs to a capacity of approximately 500 cfs. The channelized portions of Salado Creek flows northerly into the City adjacent to American Eagle Avenue, then northeasterly along Cliff Swallow Drive to Second Street between El Solyo Drive and Northmead Way where the flows are discharged into the Salado Creek Pipeline.

Black Gulch Creek is a tributary of Salado Creek that is detained and channelized within the City to where it discharges into Salado Creek. Black Gulch Creek flows for approximately 2½ miles through the Diablo Mountain Range to the lowlands 2½ miles west of Patterson, crossing I-5 near Sperry Avenue. The creek is channelized as it enters the City near Sperry Road and I-5. The channelized flow is discharged into a basin located in the area east of Rogers Road, south and west of the DMC, and north of Sperry Road. The detained flows are then discharged into a storm drainage pipeline that flows east along Keystone Pacific Parkway and Cliff Swallow Drive to discharge into the Salado Creek pipeline.

Del Puerto Creek has a watershed of approximately 73 square miles, substantially larger than that of Salado Creek (Figure 5.13-1). The DMC crosses under Del Puerto Creek in an underground siphon structure. The defined channel of Del Puerto Creek flows to the northeast from its point of emergence onto the valley floor to its confluence with the San Joaquin River. Peak daily flow rates at the United States Geologic Service (USGS) gauging station for Del Puerto Creek, approximately 1 mile west of the California Aqueduct, have been reported as high as 1,870 cubic feet per second (cfs)². Depths of flow have been recorded as high as 14.92 feet, 11.62 feet and 14.68 feet at discharge rates of 5,270 cfs, 3,400 cfs and 1,800 cfs in 1998, 1995 and 1959, respectively. However, for several months of the year there is typically no flow recorded in Del Puerto Creek. Based on the USGS peak flow data, the peak flow rate for 10-year rainfall return period would be approximately 2,475 cfs, and 6,525 cfs for the 100-year return period. However, peak flow rates downstream of the canals are limited by the capacity of the overcrossing structures.

Other major physical features affecting the Study Area drainage include:

I-5 lies on a northwesterly to southeasterly alignment along the western edge of the Study Area, and is a major transportation route from southern California through the State of Washington;

The DMC and the California Aqueduct also lie on a northwesterly to southeasterly alignment along the western edge of the Study Area, and convey federal and State water from the Delta to agricultural and urban customers south of the Delta; and,

State Route 33 (SR-33) lies on a northwesterly to southeasterly alignment through approximately the middle of the Study Area, and connects the cities in the western part of the valley between State Route 152 near Santa Nella Village to I-5 near Tracy.

² USGS, 2010

Precipitation

The climate in Patterson is characterized as dry-summer subtropical (Mediterranean), with cool, rainy winters, and relatively warm, dry summers. During the summer months the San Joaquin Air Basin is influenced by a high pressure cell off the west coast. Within this cell, air descends almost continuously; the descending air is compressed, thereby raising its temperature and lowering the relative humidity. When this cell is dominant, there are neither major storms nor any region-wide precipitation. During the winter the influence of this high pressure cell is intermittent, resulting in alternate periods of stormy, unsettled weather and periods of stable, rainless conditions.

The mean annual precipitation for Patterson is approximately 11 inches.³ Most of the precipitation occurs from December to April, while summer months are virtually rainless; however, Patterson occasionally receives rain during the summer months from thunderstorms. The lowest rainfall year on record for the Modesto-Patterson area is 1913, recorded as having only 4.3 inches of rainfall, while the highest recorded rainfall was 26.0 inches in 1983.⁴

The weather conditions in Patterson consist of mild winters and warm, dry summers. Based on historical weather data collected (from June 1902 to August 2009) by the Western Regional Climate Center⁵ for the nearest weather monitoring station located in Newman, California (046168), the monthly averaged low temperatures occur typically between December and February. The monthly averaged-low-temperatures for December through February were approximately 35.6° F, 36.1° F, and 39.5° F, respectively. The monthly-averaged-high temperatures occur typically between June and August. The monthly-averaged-high temperatures for June through August were approximately 92.0° F, 97.2° F, and 95.0° F, respectively. The 30-year (1971 – 2000) monthly mean minimum temperatures for December through February were fairly consistent with those for the entire period of record at approximately 35.5° F, 37.0° F, and 40.0° F, respectively. The 30-year monthly mean maximum temperatures for June through August were slightly milder than those for the entire period of record at approximately 90.5° F, 94.6° F, and 92.6° F, respectively. The hottest day on record was 116° F on July 23, 2006. The coolest day on record was 15° F on December 23, 1990.

Rainfall typically occurs between the months of November and March, with some infrequent events as late as May and as early as September. Over the entire period of record, the average annual rainfall measured at the Newman station (046168) was about 10.63 inches per year. The maximum annual rainfall was approximately 22.56 inches in 1998, and the low was approximately 3.34 inches in 1953. The maximum 24-hour rainfall was measured at 4.10 inches and occurred on January 17, 1988. Snowfall has only been recorded at the Newman station once in 1916 when approximately 4 inches fell.

Surface Water and Surface Water Quality

San Joaquin River

The San Joaquin River is located on the eastern edge of the Study Area. The San Joaquin River provides water for agricultural, industrial processes, warm freshwater habitat for aquatic resources, habitat for fish spawning, migration routes for anadromous or other fish species, water supply and vegetative habitat for the maintenance of wildlife, and water and non-water contact recreation.

³ Western Regional Climate Center. Available at: <http://www.wrcc.dri.edu/summary/lcd.html>. Accessed April 2007.

⁴ The City of Modesto, Engineering & Transportation Department, Capital Planning Division and the Modesto Irrigation District, *Urban Water Management Plan*, 2000.

⁵ WRCC, 2009

The watershed of the San Joaquin River is the southern San Joaquin Valley, which encompasses 11,000 square miles, extending west from the Sierra Nevada crest to the Coast Ranges, and south from the San Joaquin Delta to the drainage dividing the San Joaquin and Kings Rivers. Principal tributaries of the San Joaquin River include the Stanislaus, Tuolumne, Merced, Chowchilla, and Fresno Rivers. All of these rivers are regulated by reservoirs.

The main stem of the San Joaquin River originates high in the Sierra Nevada crest and flows westerly to Millerton Lake, which is impounded by Friant Dam. Releases in the San Joaquin system flow north toward Stockton. At Friant Dam, a major portion of the flow is diverted into the Central Valley Project canal system operated by the U.S. Bureau of Reclamation (USBR). The segment of the river from the Merced River confluence to Mossdale, near Manteca, is characterized by high flows resulting from the Merced, Tuolumne, and Stanislaus River inflows, although streamflow in the valley during the summer consists mostly of irrigation return flows.

Water quality monitoring and flow for the San Joaquin River in the Patterson Area is conducted at the Patterson Bridge station, while additional monitoring takes place downstream at the Vernalis monitoring station, located about 15 miles north of Patterson. The nearest station upstream from Patterson is located near Crows Landing.

San Joaquin River Water Quality

Waters at high elevations originate as snow melts and are of excellent quality, but irrigation drainage and waste discharges flowing into rivers on the valley floor continuously degrade water quality. Dissolved salts and nutrients in agricultural return flows, along with seepage from municipal and industrial percolation ponds, are the sources of water quality degradation. Low flows resulting from upstream diversion and regulation have virtually eliminated salmon runs in the basin streams and are endangering marshland wildlife.

Aqueducts and Canals

Located in the western portion of the Study Area are the primary features of the State Water Project (SWP) and the Central Valley Project (CVP), the Edmund G. Brown California Aqueduct and the Delta-Mendota Canal, respectively. Both features run north to south along the eastern fringe of the Coast Range. The Delta-Mendota Canal transfers water from the Sacramento-San Joaquin Delta area and distributes water to Central Valley water users, including those in the Patterson area. Although the California Aqueduct also distributes water to the Central Valley region, the California Aqueduct is distinguished by its capability to deliver water supplies to Southern California.

Salado Creek

Salado Creek originates in the Diablo Mountains south of Patterson, flows south to north across the City, and empties into the San Joaquin River to the northeast of the City. Salado Creek is an intermittent stream, flowing for short periods during and after rainfall events, and drains a watershed of approximately 25 square miles. Between State Route 33 and the San Joaquin River, Salado Creek runs underground through 96-inch and 36-inch pipelines. Although seepage from the unlined portions of the creek enters the groundwater regime, the infrequency of its flows makes the creek a minor contributor to local water supply.

No surface water quality data are available for Salado Creek. However, qualitative observations can be made about the expected water quality within the creek based on land uses within the watershed. With the exception of the Diablo Grande development in the upper portion of the watershed, Salado Creek drains sparsely developed lands in the uplands to the west. Cattle-grazing (with open access to the creek) was observed in the upland portion of the watershed. Direct access to the creek by cattle would be expected to result in elevated levels of nutrients, pathogens, and sediment in the creek water. In

addition, Salado Creek receives discharges of return water from agricultural operations, and therefore may contain residual pesticides, herbicides, and nutrients from this source. Downstream of the Study Area the creek may receive additional agricultural runoff and urban pollutants (petroleum hydrocarbons, metals, sediment) from roadway and industrial site runoff through the City of Patterson storm drainage collection and conveyance system.

Figure 5.13-1: Watersheds of Del Puerto Creek and Salado Creek

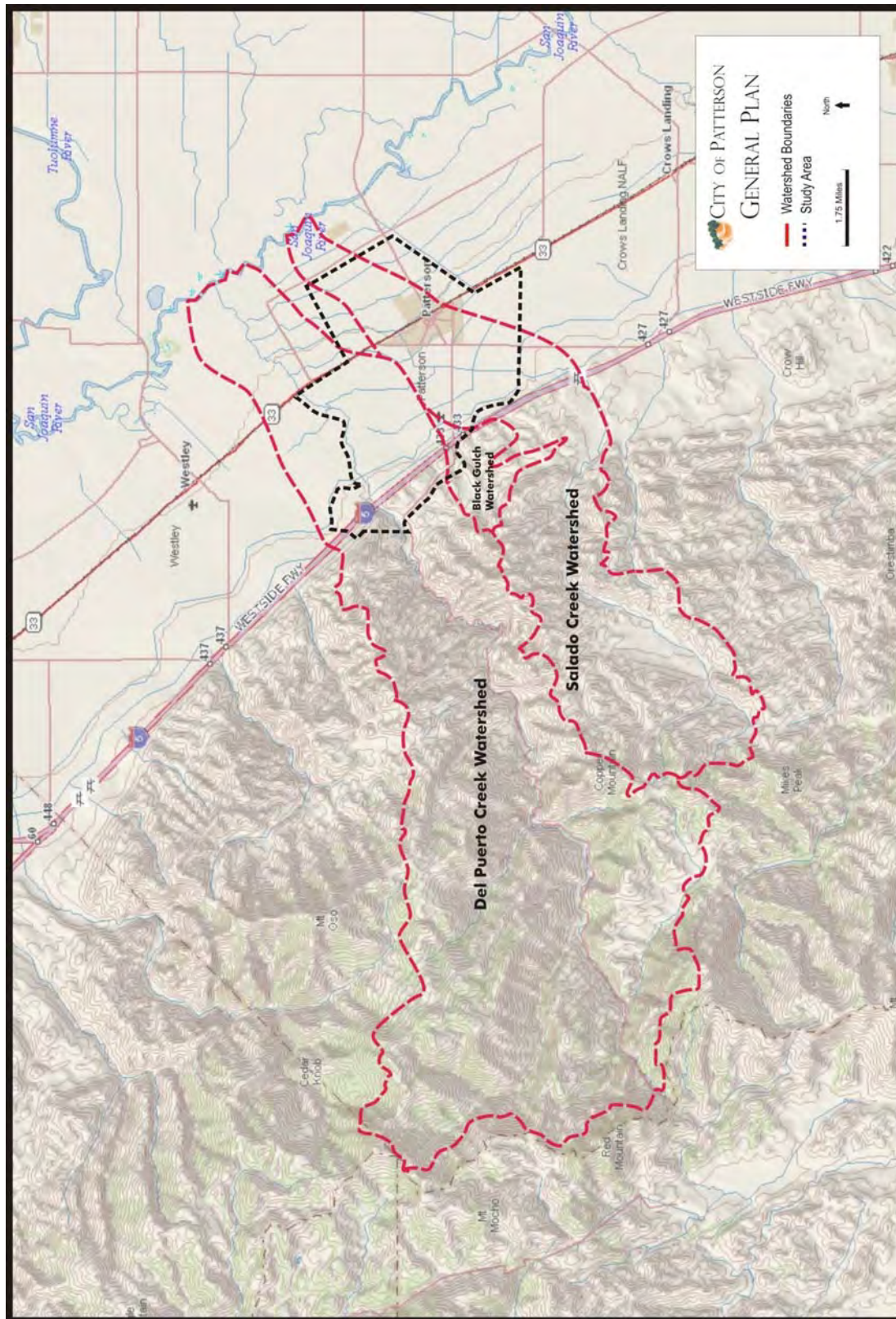
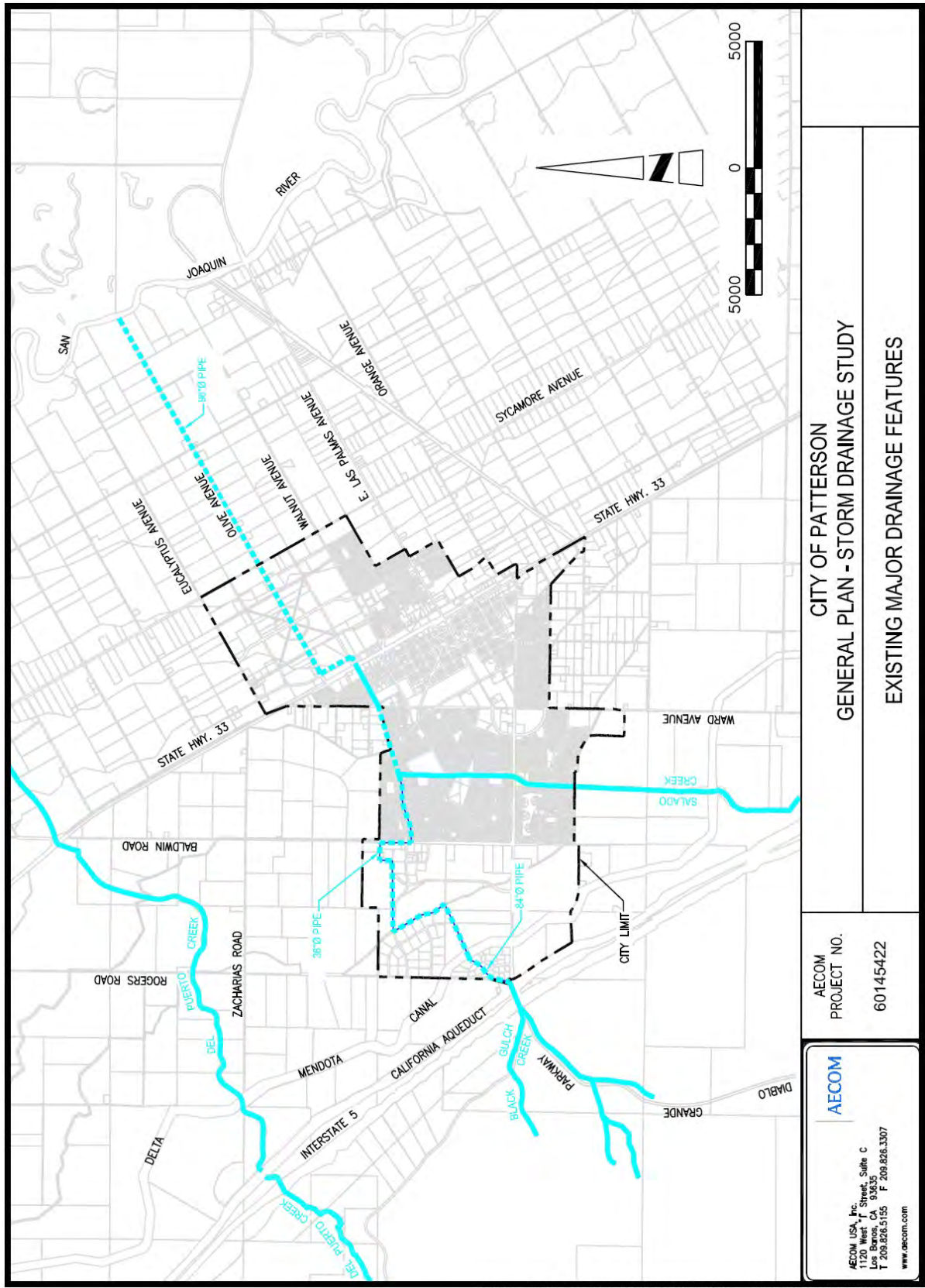


Figure 5.13-2: Major Drainage Features (shown in blue)



Flooding

Based on the Federal Emergency Management Agency's (FEMA) 1989 Flood Insurance Study for Stanislaus County, flooding reportedly occurred in the Patterson/Newman area in 1954, 1955, 1957, 1958, 1959, 1963, 1968, 1969, 1978, 1980, 1983, and 1986. Since that report was published, flooding has occurred on Salado Creek several times in the 1990s, including 1995 and 1998.

Based on the Flood Insurance Rate Map (FIRM), a substantial portion of the Study Area is located within the 100-year special flood hazard area (Zone AO) (Figure 5.13-3) (Map of FEMA Special Flood Hazard Areas, City of Patterson and Adjacent Areas, Stanislaus County, California)^{6,7} Zone AO is defined as "areas of shallow flooding where depths are between one (1) and three (3) feet..." The northern and eastern portions of the site are located within the FEMA-designated Zone B. Zone B is defined as "areas between limits of the 100-year and 500-year flood; or certain areas subject to 100-year flooding with an average depth less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood." In this case, the Zone B designation is for "areas subject to 100-year flooding with an average depth less than one (1) foot." The FIRM indicates that as the Zone AO flood waters move through the project site, they would be expected to spread out and the depth of flooding would decrease (to less than one foot) and at that location the designation changes from Zone AO to Zone B.

The rate at which water is delivered to the Salado Creek channel is controlled by the amount of water that passes through the overchute at the Delta Mendota Canal (DMC). The overchute on, and the levee system upstream of, the DMC limit the peak discharge downstream of the DMC to 710 cubic feet per second (cfs)⁸. Salado Creek between the DMC and Sperry Avenue is capable of conveying 300 cfs (Stoddard, 2001). The disparity between the conveyance capacity of Salado Creek downstream of the DMC (300 cfs) and the conveyance capacity of the DMC overchute (710 cfs) is the reason that the FIRM shows a broad "Zone B" flood hazard area north of the DMC. Zone B is defined as "areas between limits of the 100-year and 500-year flood; or certain areas subject to 100-year flooding with an average depth less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood." The FIRM indicates that the creek overtops the channel banks just north of the DMC during the 100-year event, and therefore it is concluded that the Zone B designation is for "areas subject to 100-year flooding with an average depth less than one (1) foot."

In addition to the regulatory floodplain mapping conducted by FEMA's National Flood Insurance Program (NFIP), DWR has prepared Awareness Floodplain Maps which display the 100-year flood hazard areas. These maps provide an additional resource to evaluate the flood hazards within the Study Area. Since these maps were prepared by using approximate assessment procedures to determine the flood prone areas, areas displayed as flood prone do not include any flooding specific depths or hazards. The intent of the Awareness Floodplain Mapping project is to identify all pertinent flood hazard areas by 2015 for areas that are not mapped under the FEMA NFIP and to provide the community and residents an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. These maps are not FEMA regulatory floodplain maps. However, at the request of the community FEMA would include this data on their maps.

⁶ Federal Emergency Management Agency, Flood Insurance Rate Map for Stanislaus County, California, Community Panel Number 060384 0685B and 060384 0705C, September 29, 1989.

⁷ Federal Emergency Management Agency, Flood Insurance Rate Map for City of Patterson Community Panel Number 060390 0001D, 1990.

⁸ FEMA, 1989

It is notable that most of the Study Area generally east of Baldwin Road or north of Zacharias Road is shown on the Floodplain Awareness Map as at risk or prone to flooding. Additionally, there are areas along the upper reaches of Black Gulch Creek and Del Puerto Creek that are shown as flood prone, though not identified on the FEMA Flood Insurance Maps. This appears to indicate that there may be some flood risks in these areas not formally identified and included in the Flood Insurance Maps yet, that may need to be considered during future development in those areas. The DWR Awareness Floodplain Map is presented in Figure 5.13-4.

Another source of flood information is the Best Available Flood Information maps provided by the California Department of Water Resources. In accordance with Senate Bill 5, DWR developed preliminary maps for the 100 and 200-year floodplains located within the Sacramento-San Joaquin Valley watershed that are to provide best available information on flood protection to cities and counties in the watershed for:

Areas protected by State-Federal project levees, and
Areas outside the protection of project levees.

These maps were developed based on the best information currently available. These floodplain maps are subject to change and may be updated periodically. These maps include the regulatory mapping and other available sources to delineate flood hazards. The mapping of flood hazard areas within the Study Area appears to correspond with those identified in the other maps, with much of the Study Area around the creeks in the west side being indicated as prone to flooding, and the majority of the Study Area east of Rogers Road also at risk for flooding. The DWR Best Available Map of flood information for the Study Area is presented in Figure 5.13-5.

In addition to the flood area maps developed by DWR and FEMA, DWR also prepares maps to delineate the Levee Flood Protection Zones for the major levees along the Sacramento and San Joaquin Rivers where flood risk may be incurred due to the potential for a levee break along these rivers. The Study Area lies west of and outside of the mapped Levee Flood Protection Zone along the San Joaquin River⁹.

Based on previous studies, the published flood maps and data mentioned above it appears that the Del Puerto Creek, Black Gulch Creeks and Salado Creek Drainage systems are at or exceed capacity during the 100-year flood event. While some discharge to these stream systems might be viable, additional study would be required to evaluate the risk of inducing greater flood risks downstream of where discharges might occur and to make possible recommendations to specifically address mitigation for induced flood hazards.

It is important to note that two infrastructure projects had been completed before the latest FIRM was published (September, 2008) that reduced flood hazards in the City. These include: 1) the Salado Creek diversion structures at the DMC, and 2) the improvement of Salado Creek conveyance capacity from Sperry Avenue to the San Joaquin River.

Salado Creek Diversion at the Delta Mendota Canal

In 1998, three 60-inch diameter concrete culverts were installed through the levee that separates Salado Creek from the DMC. The culverts allow storm water to flow from Salado Creek into the DMC during moderate to large storm events. This diversion reduces the maximum peak flow through the DMC overchute and in Salado Creek north of the DMC. Prior to the installation of the diversion structures, the overchute had a calculated conveyance capacity of 710 cfs (during the 100-year event). The anticipated

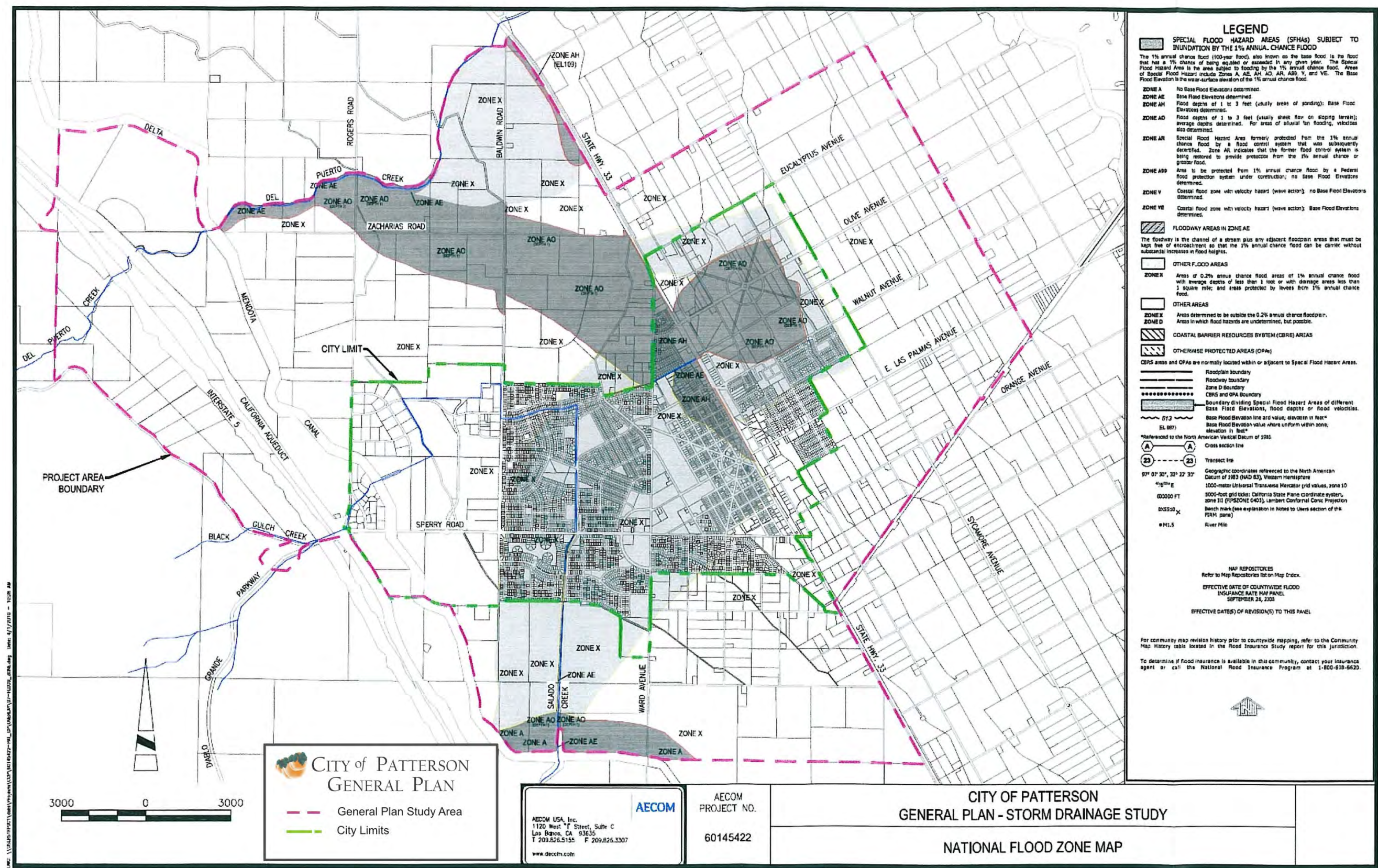
⁹ DWR, 2009

conveyance through the overchute during the 100-year event with the diversion structure in-place has not been calculated, but would be expected to be substantially less than 710 cfs.

Flooding can also occur as a result of catastrophic dam failure and the release of waters contained in upstream reservoirs. Figure 5.13-6 shows the general limits of dam inundation associated with the San Luis Reservoir.¹⁰

¹⁰ Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan, Volume One, 2005

Figure 5.13-3: Flood Hazard Area Mapped By the Federal Emergency Management Agency.



CITY OF PATTERSON
GENERAL PLAN

General Plan Study Area

3000 0 3000

CITY OF PATTERSON
GENERAL PLAN - STORM DRAINAGE STUDY
DWR - AWARENESS FLOOD PLAIN MAP

ACOM PROJECT NO. 60145422

ACOM

FOR THE CITY OF PATTERSON, CALIFORNIA
BY AECOM
DATE: 10/15/2010

DWR Awareness Floodplain
FEMA C1
Flooded 4' 1" Floodplain 1:100,000

Figure 5.13-5: Department of Water Resources Best Available Flood Map

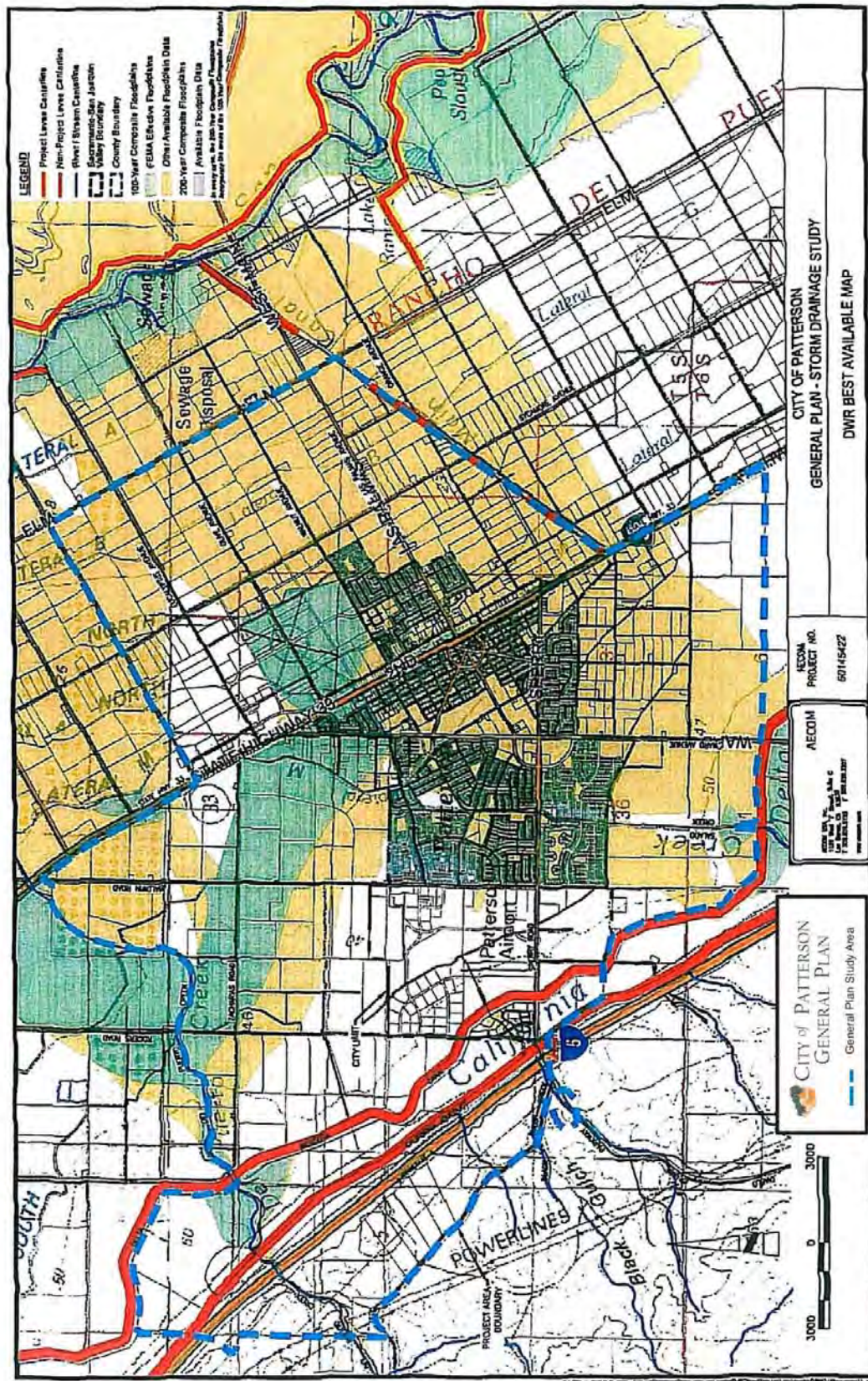
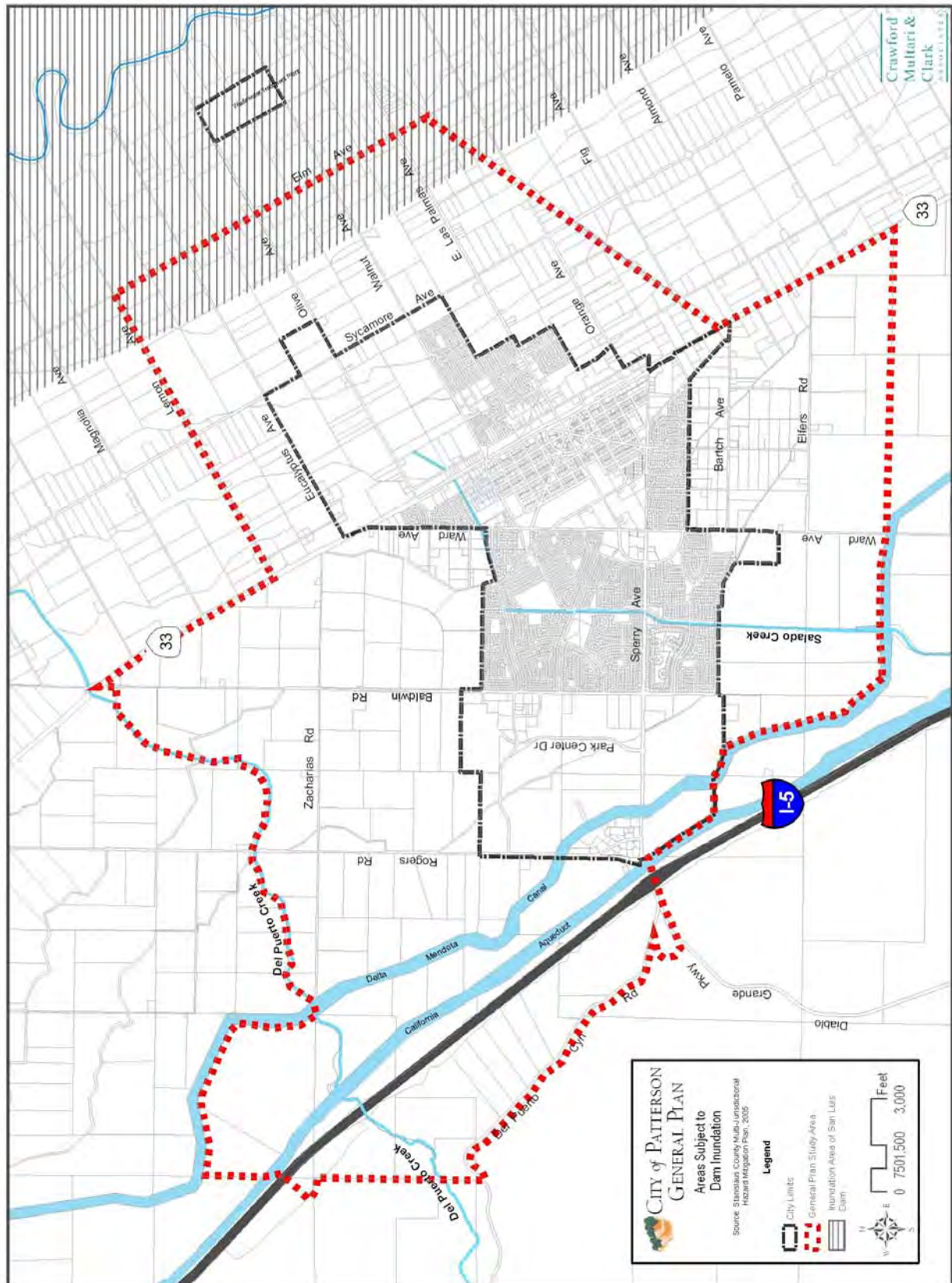


Figure 5.13-6: Potential Inundation Area for San Luis Dam



Previous and Ongoing Storm Management Efforts in Patterson

In 1992, the City prepared a Storm Water Master Development Plan that identifies the drainage improvements necessary to accommodate buildout of the City's General Plan area. The Master Plan recommends a combination of open channels and underground drainage pipes to mitigate the drainage impacts associated with buildout of the City.

The Storm Water Master Plan was modified with the approval of the Creekside Annexation and subsequent development agreement between the City and the developer of Patterson Ranch, the largest sub-area of the Creekside. The developer agreed to pay \$2.5 million in up-front costs for storm drainage improvements that will serve their project and provide additional capacity to serve other areas of the City. This initial investment has been repaid over time by new development through the collection of impact fees. The money has been used to help alleviate the existing flooding problem east of Highway 33 through the installation of an expanded culvert and pipe between Ward Avenue and First Street, and through the construction of an open drainage channel between First Street and the San Joaquin River. The improvements described in the Storm Water Master Plan, as modified by the Patterson Ranch development agreement, are intended to mitigate potential drainage impacts associated with buildout of the City in accordance with the General Plan.

Salado Creek Flood Mitigation Project -- Completed in 1998

In 1998, a cooperative project among the County of Stanislaus, the City of Patterson, and Kaufmann & Broad was constructed to increase the carrying capacity of Salado Creek from Sperry Road all the way to the San Joaquin River. The improvements consisted of both channel enlargement and embankment construction with the majority of the work being construction of a 96-inch cast-in-place pipeline from a point just east of the Union Pacific Railroad all the way to the San Joaquin River. The design capacity of the facility between Sperry Road and the San Joaquin River is 500 cfs.

Drainage Improvements Associated With the Patterson Gardens Project — Completed in 2005

The final development plan for the Patterson Gardens residential project included improvements to the Salado Creek channel through that site. The plan reshaped the channel form to increase the conveyance capacity from an estimated 300 cubic feet per second (cfs) to 500 cfs. These improvements were beneficial to the region-wide drainage conditions which increased the channel capacity beyond 500 cfs since the downstream components are not designed to convey more than 500 cfs (Stoddard, 2001). In addition, the plan included bank reshaping measures and the establishment of a 20-foot setback (including a 7.5-foot oak savanna buffer). However, even with the proposed channel conveyance improvements, it has not been demonstrated that all 100-year flows would be contained within the channel banks, and therefore flooding of residential development proposed in the vicinity of Salado Creek could occur during moderate to severe flood events.

The 2001 Master Storm Drainage Plan, City of Patterson, Western Expansion Area (Master Drainage Plan) was prepared to guide storm drain infrastructure improvements required to adequately serve the anticipated growth in the Patterson Gardens and Business Park areas. The Master Drainage Plan specified Detention and Discharge to Salado Creek as the preferred alternative to address the drainage challenges of the west Patterson area. Specifically, the Master Drainage Plan states that (page 15):

- Storm water would be collected through a series of pipelines and discharged into one of many detention basins so that the flow could be attenuated and discharged to the creek. The discharge would be interrupted when insufficient capacity was available in the creek for conveyance some time later to avoid contributing to creek flooding downstream.

- Detention basins would be evacuated by gravity discharge with the basins connected in series to a pipeline which discharges to Salado Creek, with the exception of the basins near the creek which would be evacuated by use of pumping stations. Flow into the pipeline would both be 'metered' through an orifice, and regulated by a control gate. The rate of metering would be such that the entire contents of the basin could be evacuated within 48 hours. The basins would be designed to contain runoff from the 100-year 24-hour storm event.
- Detention basins would be configured to serve also as parks in a dual purpose function.

These improvements were completed in 2005.

Drainage Improvements Associated with The Villages of Patterson Project – Not Complete in 2010

The Villages of Patterson project lies within FEMA zones AO and B, and may be susceptible to flooding during an extreme storm event. Interpretation of the FEMA Flood Insurance Study data that was used to develop the flood hazard mapping for the area indicates that flood flows of up to 2,400 cubic feet per second could pass through the site during the 100-year flood event. Unmitigated, this magnitude of flood flow could cause injuries and/or substantial damage to proposed project elements, including residential buildings. The location of the proposed project occupies the overland flow path for a large portion of the overflow from Del Puerto Creek in extreme flood events. Therefore, it is not possible for the project to simply raise pad elevations above predicted base flood elevations without potentially impacting upslope areas due to obstruction of the flood flowpath. The preliminary hydraulic design for the proposed project specifies that the proposed Garcia Way and reconstructed Olive Avenue be designed to convey the flood flows (i.e., flood waters would flow over the street surfaces and be contained within the street right-of-way. This design is preliminary and requires additional hydraulic engineering.

The Villages of Patterson Storm Drainage Study and Master Plan describes the proposed approach to storm water management at the developed project site. Under The Villages project, the existing detention basin located northeast of the intersection of Olive and Sycamore Avenues would be expanded to accommodate increased runoff from the project site. The existing detention basin is designed to detain 40 acre-feet of storm water (runoff collected from the downtown area of the City of Patterson served by the Walnut/Sycamore Avenue storm drain line). The combined detention requirement of the expanded basin, which would receive stormwater flows from the Walnut/Sycamore storm drain line and the new Villages of Patterson development, would be 98 acre-feet based on a City of Patterson design criteria of the 10-year, 24-hour storm event. The current design of the expanded basin includes approximately 80 acre feet of freeboard storage.

During extreme storm events associated with overflow from Del Puerto Creek reaching the basin, it is possible the capacity of the expanded detention basin would be exceeded. The basin would be designed so that the north and east (downstream) sides of the basin would be overtopped first and flood waters would be dispersed over a wide area. The basin would be designed to return flood flows to relatively flat lands northeast of the project site if the capacity of the basin was exceeded (essentially returning the flood flows to the path that they would take under existing conditions).

The project would reshape the 100-year floodplain through The Villages of Patterson site. Upon project implementation, the existing broad floodplain area would be replaced by relatively narrow flood conveyances. By restricting the area inundated at the site, the project would remove available floodplain storage, potentially increasing base flood elevations downslope.

The existing land use of the area downstream of the project site is rural, with relatively few residences or other structures that would be considered highly vulnerable to infrequent shallow flooding events. The

applicant's engineering team has conducted a survey all the residences downstream of the project site that could be affected by the potential project-related incremental increase in 100-year flood level elevations. This survey determined that all of the finished floor elevations of the existing residences are greater than ten inches above surrounding grade. The maximum predicted depth of flooding (under both pre- and post-project conditions) is less than five inches. Therefore, provided the flood waters are properly dispersed at the eastern project boundary, none of the existing residences would be expected to be significantly impacted by the project.

Upon completion of construction of the new 100-year flood conveyance features at the project site, much of the proposed Villages of Patterson development would still be located in FEMA designated flood hazard zones (even though the FEMA floodplain would no longer represent actual flooding conditions because the project would direct the flows to the streets). To comply with the National Flood Insurance Program and City of Patterson policies, the development would be required to ensure that the elevation of all residential finished floors on lots adjacent to the 1 percent chance floodplain are at least one foot above the new 100-year flood elevation. Additionally, a formal revision of the FEMA flood hazard mapping would need to be completed to remove the requirement of purchasing flood insurance in those areas currently mapped in Zone AO.

Storm drainage improvements associated with The Villages project have not been completed in 2010 as the project has not started construction.

Storm Drainage Master Plan, 1992 – Completed By 1998

The Storm Drainage Master Plan for the City of Patterson, dated January 1992 (Santina, 1992), was prepared to address flooding problems from Salado Creek and develop a storm drainage system within the proposed growth areas shown in the City of Patterson General Plan, adopted June 11, 1992 (Patterson, 1992). This plan describes the proposed drainage system consisting of underground pipelines and open channels, and a detention basin along Salado Creek. Only the major trunk systems were described. The recommended system consisted of mostly open channels in the undeveloped areas, with the underground piping to be installed in the areas developed prior to the report publication. A 150-foot wide “Green Belt” was also recommended along SR-33.

Storm Water Management Plan

The completed Storm Water Management Plan (SWMP) for the City of Patterson was made available for public review beginning January 23, 2004, and provided to the RWQCB for their approval. The SWMP describes best management practices (BMPs), pollutant discharge related goals, and schedules for implementation of the plan for storm water management within the City.

Groundwater

There are three physiographic regions within the San Joaquin Valley: 1) the western alluvial fan, the eastern alluvial fan, and the basin.¹¹ The Study Area is located within the western alluvial fan region in a sub-basin referred to as the Delta-Mendota Groundwater Basin (as designated by the California Department of Water Resources). The sediments in the western alluvial fan region are generally poorly sorted and derived from marine sedimentary rocks (with some continental sedimentary and volcanic rocks) of the Coast Ranges.¹² Groundwater occurs in the geologic materials underlying the site in

¹¹ Dubrovsky, N.M., C.R. Kratzer, L.R. Brown, J.M. Gronberg, and L.R. Burow, Water Quality in the San Joaquin-Tulare Basins, California, 1992-95: USGS Circular 1159, 1998.

¹² Burow, K.R., Shelton, J.L., Dubrovsky, N.M., Occurrence of Nitrate and Pesticides in Ground Water Beneath Three Agricultural Land-Use Settings in the Eastern San Joaquin Valley, California, 1993-1995, U.S. Geological Survey, Water Resources Investigation Report 97-4284, 1998.

discrete water-bearing zones or “aquifers”. The uppermost zone (from the ground surface to a depth of about 250 feet) is composed of a heterogeneous mixture of gravel, sand, silt, and clay.¹³ At a depth of approximately 250 to 300 feet below the surface, a lacustrine clay deposit known as the “modified E clay” or “Corcoran Clay” occurs in the vicinity of the site and acts as a confining layer (or aquitard) for the aquifer below. The City of Patterson, which relies almost exclusively on groundwater, operates six wells that draw groundwater from the confined aquifer (below the Corcoran Clay). This water contains elevated levels of salt,¹⁴ averaging 900 mg/L. The levels of salts in water supplied by Patterson do not exceed state drinking water standards.¹⁵

Groundwater Quality

Salt loading is a water quality issue of concern in the San Joaquin Valley. As stated in the Water Quality Control Plan (Basin Plan):¹⁶ If current practices for discharging water containing elevated levels of salt continue unabated, the San Joaquin Valley can have a large portion of its groundwater severely degraded within a few decades.

Salts (generally measured as total dissolved solids [TDS]) are introduced into the basin with imported water supplies. Although the water may leave the basin by evaporation, evapotranspiration, or through the San Joaquin River, much of the salts stay behind, potentially leading to a build-up of salt in the soil and groundwater. Excessive salt loading can result in a degraded water supply, particularly if concentrations exceed the Secondary Drinking Water standard of 1,000 mg/L (upper limit). Salt loading of managed groundwater basins is an important issue throughout the San Joaquin Valley. In addition, many of the naturally-occurring deposits in the vicinity of the Study Area, particularly in the mountains to the west, are of marine origin and, therefore, have high salt content.

The contribution of human activities (e.g., agriculture, groundwater pumping, water transfers) to the salt balance has been investigated. A United States Geological Survey (USGS) study was conducted in the Sacramento Valley of California to determine whether human activities had affected groundwater quality through time.¹⁷ Substantial increases in TDS and nitrates were observed since the 1950s, indicating that groundwater quality was degraded as a result of increasing application of agricultural chemicals and growth in urban populations. No similar studies for the San Joaquin Valley were reported, but “because agricultural practices in the San Joaquin Valley are similar to those of the Sacramento Valley, it is likely that groundwater quality in the San Joaquin Valley is also degrading as a result of human activity.”¹⁸

A subsequent study conducted by the USGS on nitrate and pesticide trends in groundwater in the eastern San Joaquin Valley¹⁹ indicates that groundwater drinking water supplies have been degraded by fertilizers and pesticides. Of approximately 100 various types of wells monitored, nitrate concentrations

¹³ Page, R.W., *Geology of Fresh Ground-Water Basin of the Central Valley, California, with Texture Maps and Sections*, U.S. Geological Survey Professional Paper 1401-C, 1986.

¹⁴ The term “salt” refers to unspecified dissolved ions in water. The salt content is typically quantified as total dissolved solids (TDS) in mg/L or electrical conductivity in mhos/cm.

¹⁵ Stoddard and Associates, *Groundwater Management Plan for the Northern Agencies in the Delta-Mendota Canal Service Area and a Portion of San Joaquin County*, April 1996.

¹⁶ California Regional Water Quality Control Board Central Valley Region, *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board Central Valley Region, The Sacramento River Basin and the San Joaquin River Basin*, 1994, p. IV-2.00.

¹⁷ Bertoldi, G.L., R.H. Johnston, and K.D. Evenson, *Ground Water in the Central Valley, California - A Summary Report*, U.S. Geological Survey Professional Paper 1401-A, 1991.

¹⁸ *Ibid.*

¹⁹ Dubrovsky, N.M., C.R. Kratzer, L.R. Brown, J.M. Gronberg, and L.R. Burow, *Water Quality in the San Joaquin-Tulare Basins, California, 1992-95: USGS Circular 1159*, 1998.

exceeded U.S. EPA drinking water standards about one-fourth of the time and pesticides were identified about two-thirds of the time (although mostly at low concentrations).

In 2006, the Central Valley Water Board, the State Water Board, and stakeholders began a joint effort to address salinity and nitrate problems in California's central Valley. The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) was formed as a collaborative basin planning effort to develop and implement a comprehensive management program.²⁰

In general, local groundwater has high alkalinity, hardness, and TDS concentrations. The TDS levels ranged from 450 to 1,110 mg/L. A large component of TDS is represented by the sum of calcium, sulfate and chloride concentrations. The City has a goal of 400 mg/L TDS and/or 150 mg/l hardness, based on an objective to reduce salts so that the community does not need private self-generating softening units. The salt reduction goal was set below the state's recommended maximum contaminant level (MCL) of 500 mg/l to enhance both drinking water quality and wastewater disposal. Controlling salts will also reduce maintenance of the City's distribution system, and increase the longevity of water infrastructure. Sulfate levels are also important factors in considering treatment processes for other contaminants. For example, ion exchange processes for arsenic and nitrate control are impacted by the presence of high sulfate levels.

Based on past sampling, a summary of groundwater constituents of concern is described as follows:

Antimony has been detected in Well 6 at 2 ug/l and in Wells 7, 8, 9, and 11 at 5 ug/l. The water quality goal for antimony is 4.8 ug/l, and therefore the groundwater could require treatment for antimony removal.

Arsenic levels in the groundwater range from 1.2 ug/l in Well 6 to 10 ug/l in Well 2. While the majority of samples have arsenic in the range of 3 ug/l to 4 ug/l, the 90th percentile level has been estimated at 8.4 ug/l.

Iron levels range from 0.02 mg/L in Well 11 to 0.3 mg/L in Well 1. The 90th percentile level is estimated at 0.24 mg/L, which is equal to the goal (e.g., the secondary MCL). While the 90th percentile level for manganese is 0.038 mg/L, one of two Well 6 samples showed a level of 0.09 mg/L. The treatment objective for manganese, based on the secondary MCL, is 0.04 mg/L.

Nitrate levels range from 2 mg/L in Well 6 to 48 mg/L in Well 7, and varies considerably among the different wells. The 90th percentile value of 48 mg/L is higher than the treatment level objective of 36 mg/L (as NO₃).

Due to degrading groundwater quality and increased growth, it is estimated that the City of Patterson will need to construct a water treatment facility in the future, or begin mixing its groundwater with higher quality surface water in order to continue meeting water quality standards.

Regulatory Setting

Federal

Federal Emergency Management Agency

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage.

²⁰ http://www.swrcb.ca.gov/centralvalley/water_issues/salinity/index.shtml (accessed June 2010)

The NFIP is managed by the Federal Emergency Management Agency (FEMA). FEMA is responsible for conducting floodplain studies and publishing Flood Insurance Rate Maps (FIRM) that delineate flood hazard areas. The City of Patterson and Stanislaus County are participating communities in the NFIP, and therefore all new development must comply with the minimum requirements of the NFIP.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to do the following.

Avoid incompatible floodplain development.

Be consistent with the standards and criteria of the NFIP.

Restore and preserve natural and beneficial floodplain values.

Clean Water Act

The Federal Clean Water Act (CWA, 33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s water.” Important applicable sections of the federal CWA are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to “waters of the United States” to obtain certification from the state that the discharge will comply with other provisions of the Act. The local Regional Water Quality Control Board (RWQCB) provides certification.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the RWQCB, and is discussed further below.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. The U.S. Army Corps of Engineers administers this permit program.

Total Maximum Daily Loads

Under CWA Section 303(d) and California’s Porter-Cologne Water Quality Control Act of 1969 (discussed below), the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the Total Maximum Daily Load (TMDL) process to assist in guiding the application of state water quality standards, requiring the states to identify waters whose water quality is “impaired” (affected by the presence of pollutants or contaminants) and to establish a TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects on the beneficial use(s) identified for that water body. TMDLs are generally stakeholder-driven processes that involve investigation of sources and their loading (pollution input), make load allocations, and identify an implementation plan and schedule. Where stakeholder processes are not effective, TMDLs can be established by the RWQCBs or the EPA.

National Pollutant Discharge Elimination System

Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Nonpoint Source Program (established through the Federal Clean Water Act). The NPDES Nonpoint Source Program objective is to control and reduce pollutants to water bodies from nonpoint discharges.

The Program is administered by the California Regional Water Quality Control Boards. Two nonpoint source NPDES permits – the General Construction Permit and the General Industrial Permit – and the Municipal Separate Storm Sewer System Program, described below, are relevant to the City of Patterson and development proposed by the project.

State

California State Water Resources Control Board

Responsibility for administering California water rights procedures lies with the California State Water Resources Control Board (SWRCB), which also is responsible for managing and administering various federal and state water quality control programs.

Procedures are provided by statute, but the board has the authority to establish rules and regulations to help it carry out its work. All board activities are governed by state water policy and are administered in accordance with policies and procedures in the California Water Code.

The SWRCB carries out its water quality protection authority through the adoption of specific Water Quality Control Plans. These plans establish water quality standards for particular bodies of water. California water quality standards are composed of three parts: the designation of beneficial uses of water, water quality objectives to protect those uses, and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The SWRCB has adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. This policy provides implementation measures for numerical criteria contained in the California Toxics Rule, promulgated in May 2000 by the U.S. EPA (SWRCB, 2005). When combined with the beneficial use designations in the Basin Plan, these documents establish statewide water quality standards for toxic constituents in surface waters.

Central Valley Regional Water Quality Control Board

Within the City's Planning Area, the CVRWQCB is responsible for the protection of beneficial uses of water resources. Designation of beneficial uses defines the resources, services, and qualities of the aquatic system that are the ultimate goals of protecting and achieving high water quality.

The CVRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility, and has adopted the Central Valley Region Water Quality Control Plan (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses of surface waters are described in the Basin Plan and are designated for major surface waters and their tributaries. In addition to identification of beneficial uses, the Basin Plan also contains water quality objectives that are intended to protect the beneficial uses of the Basin. The CVRWQCB has region-wide and water body-specific beneficial use water quality objectives.

Beneficial uses of the surface waters of the Delta include municipal, agricultural, industrial, and recreational uses, freshwater habitat, migration, spawning, wildlife habitat, and navigation. Beneficial uses for all groundwater resources in the Central Valley region include or potentially include municipal, agricultural, and industrial uses.

The CVRWQCB has set water quality objectives for all surface waters in the region concerning bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and ammonia. Water quality objectives for

groundwater include standards for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity.

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (California Water Code §§ 13000 et seq.), as amended, provides for protection of the quality of all waters of the state for use and enjoyment by the people of California. It further provides that all activities that may affect the quality of waters of the state shall be regulated to obtain the highest water quality that is reasonable, considering all demands being made and to be made on those waters. The Act authorizes the State Water Resources Control Board and regional boards to oversee responsibility for the coordination and control of water quality within California.

Drinking Water Standards

Title 22 of the California Code of Regulations (CCR) outlines drinking water standards in the State of California. Maximum Contaminant Levels for various contaminants are identified and are made enforceable regulatory standards under the federal Safe Drinking Water Act. MCL standards must be met by all public drinking water systems to which they apply. Primary MCLs can be found in 22 CCR Sections 64431–64444. Specific regulations for lead and copper are in 22 CCR Section 64670 et seq. Secondary MCLs that address the taste, odor, and appearance of drinking water are found in 22 CCR Section 64449.

Reclaimed Water Standards

Title 22 of the California Code of Regulations outlines reclaimed water standards in the State of California, and reclaimed water is primarily regulated by the California Department of Health Services (DHS), in coordination with the RWQCBs. DHS has produced The Purple Book, which contains California health laws related to reuse of disinfected tertiary recycled water. Disinfected tertiary recycled water is defined as filtered and subsequently disinfected wastewater that exhibits extremely low levels of coliform bacteria and turbidity. This publication identifies allowable uses for disinfected tertiary recycled water, as well as limitations and requirements for the use and control of recycled water.

Disinfected tertiary treated effluent may be used for groundwater recharge of domestic water supply aquifers by surface spreading provided the effluent is of a quality that fully protects human health at all times. For groundwater recharge projects, DHS makes recommendations to the RWQCB based on the relevant aspects of the project, including effluent quality and quantity, spreading area operations, soil characteristics, hydrogeology, residence time, and distance to withdrawal.

California Fish and Game Code Sections 1601–1607 (Lake or Streambed Alteration Agreement Program)

Under Sections 1601–1607 of the California Fish and Game Code, the California Department of Fish and Game (DFG) regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Sections 1601 and 1603 require public agencies and private individuals, respectively, to notify and enter into a streambed or lakebed alteration agreement with DFG before beginning construction of a project that will have either of the following results. Divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake.

Section 1601 contains addition prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Sections 1601–1607 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. Sections 1601–1607 typically do not apply to drainages that

lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.

Senate Bill (SB) 5

SB 5 was signed into law in October 2007 and requires the state to develop a plan for flood protection by 2012. Once this state plan takes effect, the bill will prohibit counties and cities located in the Sacramento-San Joaquin Valley watershed from entering into development agreements or approving permits, entitlements, or subdivision maps in a flood zone unless there is an appropriate level of flood protection or the local flood management agency has determined that adequate progress toward that flood protection has been made. Also once the plan takes effect, the bill will require 200-year flood protection for proposed projects in urban and urbanizing areas (defined as 10,000 residents or more). The bill also authorizes cities and counties to develop and adopt local plans of flood protection that include a strategy to meet the 200-year level of flood protection, an emergency response plan, and a long-term funding strategy for improvement, maintenance, and operation of flood protection facilities.

In order to implement this bill, the Department of Water Resources was required to provide cities and counties within the Central Valley watershed with preliminary 100- and 200-year floodplain maps by July 1, 2008. DWR has prepared only preliminary 100- and 200-year flood maps for 32 counties and 91 cities within the watershed. These maps are based on the best information currently available. DWR has initiated several projects that will provide updated information about flood hazards in the watershed over the next two to four years (DWR, 2008).

Assembly Bill (AB) 162

AB 162 was signed into law in October 2007 and requires cities and counties in California to incorporate flood hazards in their general plans in order to minimize risk in flood-prone areas. The bill further requires that each city and county submit their draft safety element, or draft amendment to the safety element of its general plan, to the Central Valley Flood Protection Board (formerly the State Reclamation Board) for review and comment at least 90 days prior to adoption.

Regional Water Quality Control Board, Central Valley Region

The RWQCB, Central Valley Region provides planning, monitoring, and enforcement techniques for surface and groundwater quality in the Central Valley region. A basin plan provides more specific information for specific waterways within the region, in terms of establishing monitoring techniques to control pollutant levels within the waterways. The RWQCB also monitors stormwater quality from construction activities through a National Pollutant Discharge Elimination System permitting process. Central Valley Regional Water Quality Control Plan (Basin Plan)

The Central Valley Regional Water Quality Control Plan covers all the drainage basin areas for the Sacramento and San Joaquin rivers, extending approximately 400 miles from the California- Oregon border to the headwaters of the San Joaquin River. This plan describes the beneficial uses to be protected in these waterways, water quality objectives to protect those uses, and implementation measures to make sure those objectives are achieved.

General Construction Permit

Projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit. An SWPPP should include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality throughout the construction and life of the project.

General Industrial Permit

The control of nonpoint source runoff from industrial sources and associated pollutants is regulated in California by the State Water Resources Control Board under the statewide General Permit for Stormwater Discharges Associated with Industrial Activities. The General Permit presents the requirements for compliance of certain industries with the NPDES. A wide range of industries is covered under the General Permit, including mining operations, lumber and wood products facilities, petroleum refining, metal industries, and some agricultural product facilities such as dairies.

Municipal Separate Storm Sewer System Program

On December 8, 1999, the EPA extended the NPDES Storm Water Program by promulgating regulations for small municipal storm sewer systems. Known as Phase II, the final rule automatically covers, on a nationwide basis, all small municipal storm water systems located in urbanized areas and some identified small municipal storm sewers located outside of urbanized areas if the California State Water Resources Control Board (SWRCB) determines that discharges from the storm sewer system causes or has the potential to cause an adverse impact on water quality. The Phase II final rule required the SWRCB develop a set of designation criteria. The criteria, which may result in regulation outside of an urban area, includes high population density, high growth, continuity to an urbanized area, discharge to sensitive water bodies, and significant contributors of pollutants.

The SWRCB has elected to adopt a statewide general permit to regulate the small municipal storm drainage systems, except that certain situations may necessitate individual permits or region specific permits.

On April 30, 2003, the SWRCB issued the General Permit No. CAS000004 for small municipal separate storm sewer systems (Small MS4s). An "MS4" is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

designed or used for collecting or conveying storm water;
which is not a combined sewer; and,
which is not part of a Publicly Owned Treatment Works (POTW). [See Title 40, Code of Federal Regulations (40 CFR) §122.26(b)(8).]

Small MS4 is defined as an MS4 that is not permitted under the Phase I regulations, which pertain to municipal separate storm sewer systems serving a population of 100,000 or more. The permit states that:

This General Permit regulates discharges of storm water from "regulated Small MS4s." A "regulated Small MS4" is defined as a Small MS4 that discharges to a water of the United States (U.S.) or to another MS4 regulated by NPDES permit, and which is designated in one of the following ways:

1. *Automatically designated by U.S. EPA pursuant to 40 CFR section 122.32(a)(1) because it is located within an urbanized area defined by the Bureau of the Census (see Attachment 1); or*
2. *Traditional Small MS4s that serve cities, counties, and unincorporated areas that are designated by SWRCB or RWQCB after consideration of the following factors:*
 - a. *High population density – High population density means an area with greater than 1,000 residents per square mile. Also to be considered in this definition is a high density created by a non-residential population, such as tourists or commuters.*

- b. *High growth or growth potential* – If an area grew by more than 25 percent between 1990 and 2000, it is a high growth area. If an area anticipates a growth rate of more than 25 percent over a 10-year period ending prior to the end of the first permit term, it has high growth potential.
- c. *Significant contributor of pollutants to an interconnected permitted MS4* – A Small MS4 is interconnected with a separately permitted MS4 if storm water that has entered the Small MS4 is allowed to flow directly into a permitted MS4. In general, if the Small MS4 discharges more than 10 percent of its storm water to the permitted MS4, or its discharge makes up more than 10 percent of the other permitted MS4's total storm water volume, it is a significant contributor of pollutants to the permitted MS4. In specific cases, the MS4's involved or third parties may show that the 10 percent threshold is inappropriate for the MS4 in question.
- d. *Discharge to sensitive water bodies* – Sensitive water bodies are receiving waters, which are a priority to protect. They include the following:
 - i. those listed as providing or known to provide habitat for threatened or endangered species;
 - ii. those used for recreation that are subject to beach closings or health warnings; or those listed as impaired pursuant to CWA section 303(d) due to constituents of concern in urban runoff (these include biochemical oxygen demand [BOD], sediment, pathogens, petroleum hydrocarbons, heavy metals, floatables, polycyclic aromatic hydrocarbons [PAHs], trash, and other constituents that are found in the MS4 discharge).
 - iii. Additional criteria to qualify as a sensitive water body may exist and may be determined by SWRCB or RWQCB on a case-by-case basis.
- e. *Significant contributor of pollutants to waters of the U.S.* – Specific conditions presented by the MS4 may lead to significant pollutant loading to waters of the U.S. that are otherwise unregulated or inadequately regulated. An example of such a condition may be the presence of a large transportation industry.

These factors are to be considered when evaluating whether a Small MS4 should be regulated pursuant to this General Permit. An MS4 and the population that it serves need not meet all of the factors to be designated. SWRCB designates a number of Small MS4s according to these criteria through this General Permit.

The City is classified as a Small MS4 regulated entity under the Phase II NDPES Program, as identified in SWRCB Water Quality Order 2003-0005-DWQ Attachment 2, due to the fact that it has a high growth or growth potential, a high population density, and discharges to a designated sensitive water body, the San Joaquin River. As a regulated Small MS4 the City was required to complete a Storm Water Management Program (SWMP), obtain the Small MS4 General Permit, and implement storm water pollution prevention plans (SWPPP) to reduce or eliminate pollutants from entering adjacent receiving waters via City discharges.

The first 5-year term of the General Permit was adopted by the SWRCB in 2003 and expired on May 1, 2008. However, pursuant to the General Permit, §H.21, Continuation of Expired Permit, the General Permit continues in force and in effect until a new General Permit is issued or the State Water Board rescinds the General Permit.

The next threshold under the municipal Storm Water Permitting Program would occur with the growth in population to greater than 100,000, at which point the City would transition from the classification of small to medium. At this stage the municipality would be required to apply and obtain an NPDES Storm Water Permit through SWRCB. However, growth is not projected to exceed the 100,000 person threshold in any of the proposed alternatives.

The Storm Water Phase II Final Rule applies to operators of regulated small municipal separate storm sewer systems (MS4s). Under the NPDES storm water program, operators of large, medium, and regulated small MS4s require authorization to discharge pollutants under an NPDES permit. Medium and large operators are required to submit comprehensive permit applications and are issued individual permits.

A Storm Water Management Program (SWMP) to comply with the Small MS4 General Permit was prepared and submitted to the State Water Resources Control Board by the co-permittees (the participating city agencies). The SWMP was approved by the CVRWQCB in 2004. The SWMP describes the program to be implemented by the City agencies. The City of Patterson is legally obligated to implement the requirements of the SWMP and to comply with the requirements of the small MS4 General Permit, which include the following (excerpt from the General Permit):

The Permittee must require long-term post-construction BMPs that protect water quality and control runoff flow, to be incorporated into development and significant redevelopment projects. Post-construction programs are most efficient when they stress (i) low impact design; (ii) source controls; and (iii) treatment controls.

In addition, projects disturbing more than one acre, but less than five acres of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

Local

City of Patterson Flood Management Regulations

Title 17 of the City's Municipal Code, Flood Hazard areas, sets forth regulations for development within areas subject to flooding. As follows:

In all areas of special flood hazards the following standards are required:

A. Anchoring.

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
2. All manufactured homes shall meet the anchoring standards of Section 17.12.040.

B. Construction Materials and Methods.

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
3. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent from entering or accumulating within the components during conditions of flooding.
4. Require within Zones AH or AO adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

C. Elevation and Floodproofing.

1. New construction and substantial improvement of any structure shall have the lowest floor, including basement, elevated to or above the base floor elevation. Nonresidential structures may meet the standards in subdivision 3 of this subsection C. Upon the completion of the structure the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor, or verified by the community building inspector to be properly elevated. Such certification or verification shall be provided to the floodplain administrator.
2. New construction and substantial improvement of any structure in Zone AO shall have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM, or at least two feet if no depth number is specified.

Nonresidential structures may meet the standards in subdivision 3 of this subsection C. Upon the completion of the structure the elevation of the lowest floor including basement shall be certified by a registered professional engineer or surveyor, or verified by the community building inspector to be properly elevated. Such certification or verification shall be provided to the floodplain administrator.

3. Nonresidential construction shall either be elevated in conformance with subdivisions 1 or 2 of this subsection C or, together with attendant utility and sanitary facilities:
 - a. Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
 - b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
 - c. Be certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Such certifications shall be provided to the floodplain administrator.
4. Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:
 - a. Either a minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided; the

bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwaters; or

- b. Be certified to comply with a local floodproofing standard approved by the Federal Insurance Administration.

5. Manufactured homes shall also meet the standards in Section 17.12.040. (Ord. 419 § 5.1, 1987).

17.12.020 Standards for utilities.

- A. All new and replacement water supply and sanitary sewer systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters.
- B. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding. (Ord. 419 § 5.2, 1987).

17.12.030 Standards for subdivisions.

- A. All preliminary subdivision proposals shall identify the flood hazard area and the elevation of the base flood.
- B. All final subdivision plans will provide the elevation of proposed structure(s) and pads. If the site is filled above the base flood, the final pad elevation shall be certified by a registered professional engineer or surveyor and provided to the floodplain administrator.
- C. All subdivision proposals shall be consistent with the need to minimize flood damage.
- D. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.
- E. All subdivisions shall provide adequate drainage to reduce exposure to flood hazards. (Ord. 419 § 5.3, 1987).

17.12.040 Standards for manufactured homes.

All new and replacement manufactured homes and additions to manufactured homes shall:

- A. Be elevated so that the lowest floor is at or above the base flood elevation; and
- B. Be securely anchored to a permanent foundation system to resist flotation, collapse or lateral movement. (Ord. 419 § 5.4, 1987).

17.12.050 Floodways.

Located within areas of special flood hazard established in Section 17.04.060 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- A. Prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless certification by a registered professional engineer or architect is provided

demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

- B. If subsection A of this section is satisfied, all new construction and substantial improvements shall comply with all other applicable flood hazard reduction provisions of this chapter. (Ord. 419 § 5.5, 1987).

City of Patterson Improvement Standards and Specifications

The City of Patterson Improvement Standards and Specifications include some hydrologic criteria for storm water storage and conveyance that should be considered in the planning and design of such facilities (Patterson, 2009).

The standards require the Rational Method be utilized to quantify runoff rates and volumes from new development, with a roof to gutter time of 20 minutes. The standards set forth minimum slope requirement for storm drainage conveyance pipelines related to the diameter and materials composition of the pipe. The standards establish a requirement for Manning's roughness coefficient of 0.013 for reinforced concrete pipe, and 0.015 for cast in place concrete pipe.

Detention basins that are to be gravity discharged must have a designed capacity to retain the 10-year 24-hour storm event. While detention basins that have a pumped discharge must have a designed capacity to retain the 50-year 24-hour storm event. Detention basins must be designed such that the water surface elevation at maximum capacity be 1-foot below the top of curb elevation at the lowest catch basin. The maximum side-slope on basins must not be steeper than 1v:6h. The basin floors must be sloped towards drainage outlet facilities at a slope of 0.008 or greater. Basin discharge pumps must be sized to fully discharge the basin at full capacity within 48 hours. There are no requirements or standards set for retention basins or dual use facilities. The use of retention basins or storage basins is permitted by the City only with specific prior approval, on a case by case basis.

Stanislaus County Public Works Standards And Specifications

Similarly, the County of Stanislaus Improvement Standards and Specifications include some hydrologic criteria for storm water storage and conveyance that might also be considered in the planning and design of such facilities (Stanislaus County, 2007).

The peak flow rates, determined by the Rational Method, are used to size collection and conveyance facilities, e.g. pipes and open channels. The Rational Method may be utilized to quantify runoff rates and volumes from new development of less than or equal to 400 acres. While more advanced design methods must be utilized for development areas larger than 400 acres.

Conveyance facilities must be designed to convey a 10-year storm or greater at full capacity. All facilities must be designed to provide public safety and not increase inundation of any building or roadway surface. Manning's Equation shall be used to determine the capacity and friction losses of open channels and enclosed gravity conduits. All storm drainage storage facilities within Stanislaus County shall be designed using a 50-year storm or greater. All drainage storage facilities must be capable of draining their full capacity within 48 hours by outlet facilities providing positive drainage or through percolation. A minimum separation of five (5) feet measured from the bottom of the drainage facility to the water table surface elevation shall be provided. If design restrictions do not provide a 5 foot minimum separation from the basin bottom to the water table elevation, the Developer shall obtain prior written approval and authorization from Stanislaus County Department of Environmental Resources prior to construction.

Significance Thresholds

In accordance with Appendix G of the CEQA Guidelines the Equal-Weight Alternatives would result in a significant impact to hydrology or water quality if it would:

1. Generate substantial stormwater runoff and/or alter surface water drainage patterns that would result in an increased severity of flooding within the Study Area or downstream;
2. Significantly degrade surface water and groundwater quality directly or indirectly;
3. Substantially deplete groundwater resources to such an extent that it would impact existing surface water features that rely on groundwater;
4. Substantially degrade groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted; or
5. Conflict with applicable local, state, and/or federal policies and standards associated with water resources.
6. In addition, based on state legislation, the Equal-Weight Alternatives would result in a significant impact to hydrology if it would result in future development within areas that do not have a minimum 200-year flood protection.

Project Impacts and Mitigation Measures

Methodology

The analysis of drainage and flooding impacts is based on a study prepared by Boyle Engineering (City of Patterson General Plan Storm Drainage Study, June 2010) which is provided in its entirety as Appendix 5.13).

Design Criteria and Assumptions

With consideration given to the above standards and standards of other communities, the storm drainage analysis criteria, set forth in Table 5.13-1, were selected for guidance and development of storm drainage systems to serve each of the Equal-Weight Alternatives.

Retention Basins. Based on preliminary data retention basins would generally be less than preferable for most locations throughout the Study Area. Low hydraulic conductivities, and in some cases relatively shallow groundwater are generally less than favorable conditions for rapid percolation. The low hydraulic conductivities would require increasing basin wetted surface areas to increase percolation capacity, correspondingly increasing the size and cost of basins beyond that necessary for just storage capacity. Retention basins would generally require a storage capacity capable of handling at least the 50-year, 24-hour storm event and be capable of discharging the design capacity within 48-hours. Additionally, if extended periods of storage were required such storage would preclude most dual-use applications. Therefore, retention basins, also known as percolation basins, were not considered for this study.

Table 5.13-1: Design Criteria for Storm Drainage Systems

Rainfall Intensity–Duration	Rainfall intensity and duration were determined from publicly available data from the State of California, National Weather Service, and City of Patterson.
Catchment Runoff	Subcatchment areas were selected based on consistent land usage characteristics and general land features. Design runoff discharges were computed using the United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Technical Release 55 (TR-55) implemented through a USEPA Storm Water Management Model (SWMM) v.5.0 Model.
Detention Basin Storage	Basins using a gravity discharge system must be capable of retaining runoff from the 10-year, 24-hour hypothetical rainfall event. Basins using a pumped discharge system must be capable of retaining runoff from the 50-year, 24-hour hypothetical rainfall event. The minimum separation between the bottom of the basin and the water table should be 5 feet, unless otherwise approved by the City.
Detention Basin Control	Basin inlet and outlet works should be designed, and the basin configured, to control the flow diverted into the basin and control of the flow discharged from the basin such that water can be diverted for water quality control and treatment as needed.
Basin Evacuation	Detention basins should be designed such that the basin can be emptied of its full capacity within 48-hours.
Basin Configurations	Detention basins should not exceed a depth of 7 feet and side slopes should not be steeper than 6 horizontal to 1 vertical. Detention basins may be configured to be utilized as dual-use facilities.
Conveyance Facilities	All conveyance systems downstream of a detention facility should be designed to convey the peak discharge flows for contributing detention facilities. Minimum flow velocities during peak flows should not exceed 2 fps. Minimum pipe size should be twelve inches (12”), and the minimum cover should be thirty six inches (36”).
Outfall Facilities	All storm water should be discharged to the San Joaquin River

Discharge to Streams. As discussed in the Setting section, the carrying capacity of the streams within the Study Area is currently exceeded during major storm events. Since development would likely increase both the peak discharge rates and total discharge volumes of storm water from the Study Area, it is anticipated that additional storm water discharge to the streams within the Study Area could induce or potentially increase flooding downstream. For the purposes of this study, to compare alternatives, these drainage systems were deemed unsuitable to handle additional storm water discharges without substantial additional study. Therefore, for this study, all storm water was collected and conveyed via additional constructed systems to and discharged into the San Joaquin River east of the Study Area.

Runoff Model

The Storm Water Management Model (SWMM), version 5.0, was used to perform the hydrologic computer modeling of the subcatchments. This program was developed by the EPA's National Risk Management Research Laboratory - Water Supply and Water Resources Division for rainfall-runoff simulation model²¹. The SWMM model was chosen both for its capacity to model hydrologic conditions, but also for its capabilities to model representative hydraulic conditions within the conveyance systems. It is an industry accepted model for the applications to storm water collection and conveyance. While it is acceptable to analyze hydrologic runoff utilizing the rational method up to 400 acres, it is typically not the best practice. It is generally accepted that run off from land areas larger than about 100 to 200 acres should not be analyzed using the rational method, and other more advanced models should be utilized.

²¹ USEPA, 2010

The rainfall frequency-depth-duration curves set forth in the Stanislaus County's Standards and Specifications (County Standards) have been adopted for use in this study. These curves were based on long term rainfall intensity data from the Modesto rainfall gauging station and the long term rainfall data for the Newman station. To obtain intensities for City of Patterson, the relative rainfall intensity from the Modesto gauging station was compared and applied to correct the mean annual precipitation to match that of the Newman gauging station.

The model was provided rainfall intensity data in 15-minute intervals that formed a cumulative hyetograph of a simulated 24-hour rainfall event with return period of 10-years. The data was generated by using a Soil Conservation Service (SCS) Type I synthetic 24-hour rainfall distribution curve. The simulated rainfall events were utilized by the model to develop storm runoff hydrographs for sizing of storage and conveyance facilities, and computing the discharges into the receiving waters.

The model used the TR-55 methodology to analyze storm water runoff from the various subareas within the Study Area²². This method is preferred over the Rational Method for use with large watershed areas and is the method required by Stanislaus County for areas larger than 400 acres. The TR-55 method was utilized because it provides more accurate results than the Rational Method for drainage areas exceeding 20 acres, and generates synthetic hydrographs of subcatchment runoff that then can be routed through conveyance and storage facilities.

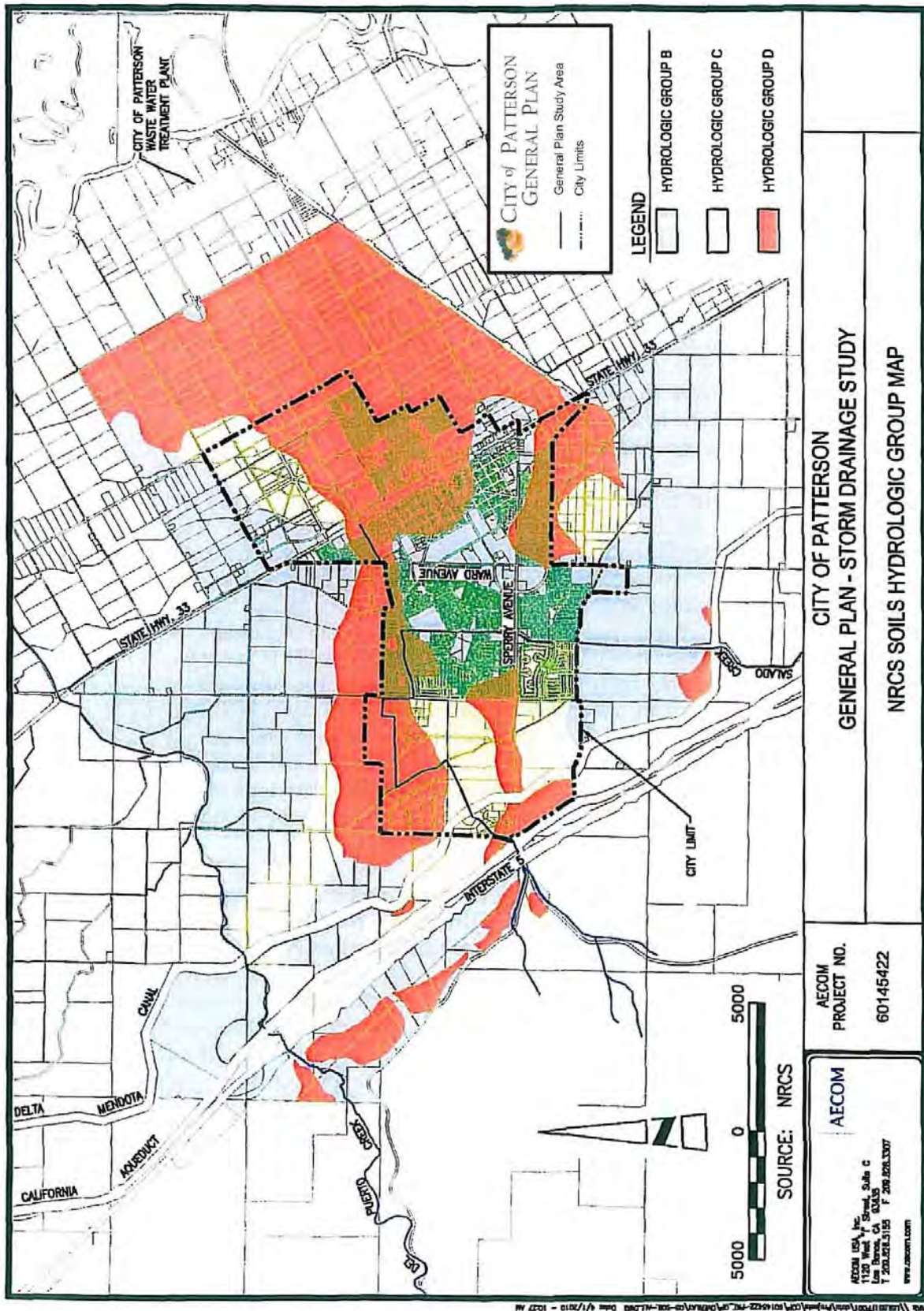
To estimate runoff from storm rainfall, SCS uses the runoff curve number (CN) method²³. The major factors that determine CN are the hydrologic soil group (HSG), cover type, treatment, hydrologic condition, and antecedent runoff condition (ARC). Another factor considered is whether impervious areas discharge directly to the drainage system (connected) or whether the flow spreads over pervious areas before entering the drainage system (unconnected). The CN has a range of 0 to 100 potential maximum retention after runoff (S), and initial abstraction (Ia). The potential maximum retention is related to the soil and cover conditions of the watershed through the CN. A major factor in determining the CNs for a subcatchment is the infiltration rates of soils within the subcatchment. The infiltration rates of soils can vary widely and are affected by subsurface permeability as well as surface intake rates. As previously discussed, NRCS has grouped soils into four hydrologic soils groups (A, B, C, and D) according to their minimum infiltration rate, which is obtained for bare soil after prolonged wetting. The hydrologic soil groups and the proposed land uses are utilized to determine CNs to quantify runoff pursuant to TR-55. A map showing the hydrologic soils groups within the Study Area is presented in Figure 5.13-7.

Another important factor considered in deriving the CN for a specific subcatchment was the coverage by impervious surfaces due to urban development. Urbanization has a greater effect on runoff in subcatchments with soils having high infiltration rates (sands and gravels) than in those comprised of predominantly silts and clays, which generally have low infiltration rates. However, urbanization still has a major impact on the infiltration capacity of areas developed mostly on fine grained soils also. Any disturbance of a soil profile can significantly change its infiltration characteristics. Thus, increased pavements and building coverage within a developed area increases the peak and total runoff volumes. Therefore, the variation in proposed residential unit densities and projected composition of mixed use and neighborhood village land uses impact the CNs. The CN's derived for use in this study varied by alternative based on the various land uses. The CNs derived for the all the Equal-Weighted Alternatives is based upon proposed land use and soil types, are provided in Appendix 5.13.

²² NRCS, 1986

²³ SCS, 1985

Figure 5.13-7: Hydrologic Soil Types Within the Study Area



Hydromodification and Low Impact Development

Urban development modifies the terrain, vegetation and soil characteristics. It introduces impervious surfaces, such as pavement, sidewalks and buildings, drainage and flood control infrastructure. These impervious surfaces, compacted soils, flood control improvements and topographic modifications alter the distribution and flow of water across a watershed²⁴. Urban development changes the hydrologic characteristics and processes of runoff in the watershed and stream flows. Infiltration, interception, and evapotranspiration are diminished and a greater percentage of precipitation is converted to overland flow. These changes impact the water balance in a watershed, with less water infiltrated and available for groundwater recharge or shallow subsurface flows that constitute the base flows to receiving streams. In addition, the increased volume of overland flow imparts physical impacts on receiving streams, and transports sediments and pollutants that have collected on impervious surfaces.

Studies have shown stream channels are influenced by changes in both peak discharge amount and duration of discharge²⁵. Watershed changes due to urban development also alter the condition of stream channels to which discharges occur by straightening, deepening and armoring them locally. These changes in the watershed and streams alter the supply and transport of sediment, pollutants, and other characteristics of the stream system (rainfall interception, infiltration and groundwater recharge, runoff, base flow and stream flow). The change in runoff characteristics and stream discharges due to alterations in land use are cumulatively defined as hydrographic modification, or hydromodification. A variety of problems can occur as a result of hydromodification, including:

- increased sediment transport; increased erosion and sedimentation;
- induced or increased flooding; disruption of natural drainage patterns, stream flows and riparian habitat; and
- adverse impacts to water quality;

The 1987 amendment to the Clean Water Act (CWA) established a federal mandate to manage and control stormwater. Since then the term hydromodification has evolved to describe alterations of the hydrologic regime as a result of land-use changes or dams²⁶. A recent movement to address stormwater related impacts on a watershed basis by limiting hydromodification and the volume of discharges is a departure from the convention of peak flow limitation and flood control²⁷.

One method of addressing hydromodification has been enacting requirements for preparing and implementing of Hydrographic Modification Plans (HMP) that frequently must include Low Impact Development (LID) to achieve the objectives set for the HMP. LID is a sustainable practice that benefits water supply and contributes to water quality protection²⁸.

LID uses site design and storm water management to maintain the site's predevelopment runoff rates, durations and volumes. The goal of LID is to mimic a site's predevelopment hydrology by using decentralized design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID has been a proven approach in other parts of the country and is seen in California as an alternative to traditional storm water management.

²⁴ SWRCB, 2007

²⁵ Southern California Coastal Water Research Project, 2010

²⁶ U.S. EPA 1997

²⁷ SWRCB, 2007

²⁸ RWQCB, 2008

The RWQCBs have been advancing LID in California in various ways, specifically through regulation of NPDES site-specific (Phase I MS4) and general permits (Phase II MS4). LID works with nature to manage stormwater employing principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product²⁹. There are many practices that have been used to adhere to these principles such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements.

By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed. Applied on a broad scale, LID can maintain a watershed's hydrologic and ecological functions.

Several states, including California, have begun to evaluate and implement storm water regulatory changes. If approved, a new permit would establish statewide post-construction runoff standards. The draft permit requires mitigating hydromodification by maintaining predevelopment hydrologic characteristics on a site. Many of the RWQCBs have already implemented regional requirements for municipalities.

Previous NPDES Stormwater Permits from the RWQCB, San Francisco Bay Region, explicitly required stormwater programs to develop and implement HMPs. The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) was the first permit to include the new HMP requirements³⁰. The SCVURPPP HMP limits post-construction runoff to preconstruction rates and durations in accordance with their NPDES Stormwater permit requirements. This was followed by similar requirements for Alameda, Contra Costa and San Mateo Counties³¹. In conformance with these previous NPDES stormwater permit requirements, these agencies also developed HMPs. Under the recently adopted NPDES Municipal Regional Stormwater Permit, the San Francisco Region RWQCB has included additional requirements for implementing LID and more specific hydromodification standards and management requirements³². In addition other agencies such as Suisan-Fairfield are explicitly required to develop a HMP. Under Provision C.3 of the permit the RWQCB clearly states that the goal

“... is for the Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID) techniques.”

Within the jurisdiction of the RWQCB, Los Angeles Region, the approved Standard Urban Stormwater Management Plans (SUSMPs) establish which types of development will be required to implement stormwater controls and the control, pollutant removal, site design, and maintenance requirements. One example of an implicit requirement for LID is stated in the SUSMP for Los Angeles County, which stipulates that: “Post-development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak stormwater discharge rate will result in increased potential for downstream erosion.”

²⁹ USEPA, 2010

³⁰ RWQCB, 2001

³¹ RWQCB, 2003a, b, 2004

³² RWQCB, 2009

The RWQCB, Central Coast Region, requires municipalities, via the General Phase II MS4 NPDES Stormwater Permit, to:

“...minimize negative impacts on aquatic ecosystems and degradation of water quality to the maximum extent practicable by incorporating LID methodology into new and redevelopment ordinances and design standards, unless permittees can demonstrate that conventional BMPs are equally effective, or that conventional BMPs would result in a substantial cost savings while still adequately protecting water quality and reducing discharge volume. In order to justify using conventional BMPs based on cost, permittees must show that the cost of low impact development would be prohibitive because the cost would exceed any benefit to be derived.”³³

The RWQCB, Central Coast Region, has determined that conventional site layouts, construction methods, and stormwater conveyance systems with “end-of-pipe” basins and treatment systems that do not address the changes in volume and rates of storm water runoff and urban pollutants (including thermal pollution) do not meet Maximum Extent Practicable (MEP) standards.

In January 2007, the RWQCB, San Diego Region, reissued the San Diego Countywide Phase I Municipal Stormwater Permit³⁴. The under Provision D.1 of the permit, San Diego County agencies are explicitly required to prepare and implement an HMP

“...to manage increases in runoff discharge rates and durations from all Priority Development Projects, where such increased rates and durations are likely to cause increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force”.

The RWQCB, Central Valley Region, has also begun to require the development and implementation of HMPs as part of the required Storm Water Quality Improvement Plan (SQIP), and that LID development strategies be implemented following approval of the HMP³⁵. As an example of this current trend, for the Sacramento County and Associated Cities WDRs for Municipal Separate Storm Sewer System, their WDRs require that the HMP must be submitted “...as part of their SQIPs for approval by the Regional Water Board One year after Regional Board approval of the SQIP/HMP Work Plan...”, and that they “...amend their development standards to implement the HMP no later than six months after Regional Water Board approval of the HMP”.

The WDRs specify the minimum required components of the HMP and that it shall address the following: “...require controls to manage the increases in the magnitude (e.g., flow control), frequency, volume and duration of runoff from development projects in order to protect receiving waters from increased potential for erosion and other adverse impacts with consideration towards maintaining (or reproducing) the pre-development hydrology”. One of the means to maintaining the predevelopment hydrology has been for RWQCB, Central Valley Region, to require the Sacramento County and Associated Cities to adopt strategies to implement LID in new development and re-development projects. The requirement for developing and implementing a HMP has become a recurrent theme throughout California evolving since 2000 with more focus on the application of LID to new development and re-development projects. While specific requirements for an HMP can vary between regulating agencies, locations and site specific characteristics, based on the evolution of the hydromodification regulations throughout California, it may be expected that such regulations will come to bear in the Central Valley in the future, impacting development and stormwater planning for Cities such as Patterson during the current planning horizon. For proposed development within erodible, flood

³³ SWRCB, 2000

³⁴ RWQCB, 2007

³⁵ RWQCB, 2008

prone or sensitive watersheds, planning to address hydrographic modifications is necessary. A variety of at-the source processes, including LID, may be necessary to adequately mitigate hydrographic modification related impacts along existing natural waterways and adjacent watersheds due to the changes in stormwater runoff related to development within the watershed.

Potential Pollution of Water Bodies from Development Activities

Impact 5.13-1 Development activities accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives within the 20-year and 40 year buildout growth boundaries could result in the discharge of polluted runoff from the construction of future urban development, potentially causing harm to the biological integrity of waterways, violating water quality standards, or otherwise substantially degrading surface water quality. This impact is considered potentially significant.

Construction and grading activities associated with development accommodated by any of the Equal-Weight alternatives could result in the exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Soil stockpiles and excavated areas would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in off-site receiving waters and eventually the San Joaquin River.

The amount of additional land that may developed with urban uses with each Equal-Weight Alternative is provided in Table 5.13-2 and ranges from about 5,000 acres for the Compact Development Alternative to about 9,600 additional acres with the Planning Commission Environmental Review Alternative.

Table 5.13-2: Comparison of Potential Increase In Developed Acres Accommodated By Each Equal-Weight Alternative 20- and 40 year buildout Growth Boundaries Combined				
	Existing Developed Area	Compact Development	Jobs Emphasis	PC Env. Review Plan
Acres:	2,694	4,970 ¹	8,771 ¹	9,752 ¹
Notes:				
1. Increase in developed acres over existing in 2009. Gross acres inclusive of streets, parks, canals, schools and other similar uses.				

The potential for chemical releases is also present at most construction sites. Once released, substances such as fuels, oils, paints, and solvents could be transported to surface waters and/or groundwater in storm water runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters.

Continued compliance with the relevant provisions of the Clean Water Act relative to the protection of surface and groundwater quality will ensure impacts to water quality associated with development accommodated by any of the Equal-Weight alternatives will be less than significant. Specifically:

Compliance with the City's Small MS4 General Permit Best Management Practices before, during and after construction; Such BMPs include:

- o Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
- o Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
- o Providing a central location for concrete washout and performing routine maintenance.
- o Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
- o Covering and/or containing stockpiled materials and overall good housekeeping on the site.

For projects disturbing more than one acre of land during construction continuing to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. Under the provisions of the City's General Permit, a developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

Draft General Plan Policy Response

The draft General Plan provides the following policies related to the protection of water quality from construction related impacts:

Policies

- NR-1.2 Stormwater quality.** The City shall implement measures to minimize the discharge of pollutants and sediment into Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.3 Inter-agency cooperation.** The City shall continue to work with local, state, and federal agencies and other watershed organizations to improve water quality.
- NR-1.3 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.4 New development.** The City shall require new development to protect the quality of water bodies and drainage systems through adaptive site design, stormwater management, and the implementation of best management practices (BMPs).
- NR-1.7 CEQA.** The City shall use the California Environmental Quality Act (CEQA) process to identify and avoid (or mitigate) potential groundwater pollution problems resulting from new urban development.

- NR-2.11 Soil conservation.** The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.
- NR-6.1 Sustainable building practices.** The City will encourage the use of sustainable, energy efficient construction techniques. The City will identify and remove regulatory or procedural barriers to implementing green building practices, such as updating codes, guidelines, and zoning, and will ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- HS-2.14 Runoff control.** The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.
- HS-6.5 Management of hazardous materials.** The City will regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse, and may request applicants to have an emergency response plan.
- PS-2.5 Pollutant requirements.** Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.
- PS-3.13 Surface pollutant control.** The City shall require new development to incorporate runoff control measures to minimize discharge of surface pollutants into drainage systems. Examples of potential programs include:
- The use of “bioswales” and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap
 - contaminants;
 - Installation of grease/oil separators to keep these
 - contaminants out of storm runoff;
 - Regular street sweeping programs to prevent the buildup of oil,
 - grease, and other contaminants and keep them from being
 - swept into creeks and rivers;
 - Minimizing pesticide use and promoting the use of natural pest
 - controls;
 - Encouraging the installation of “gray water” systems.

- PS-3.14 Erosion control.** The City shall require new development to incorporate erosion control measures to minimize sedimentation of streams and other natural drainage features.

Implementation Measures

- HS-1 The City shall adopt the most current editions of the California Building Code, California Fire Code, Uniform Plumbing, Mechanical, and National Electric Codes.
- PS-5 The City shall prepare, adopt, review, and periodically update Drainage Master Plans for all new development and annexation areas.
- NR-1 The City shall continue its program of routinely monitoring groundwater quality.
- PS-6 New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City will require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current

municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Additional Mitigation

Policy NR-1.4 is recommended to be amended as follows (in italics):

NR-1.4 New development. The City shall require new development to protect the quality of water bodies and drainage systems through adaptive site design, stormwater management, and the implementation of best management practices (BMPs). *The City shall apply the following principles of Low Impact Development in the review of development projects for purposes of minimizing runoff and potential water quality impacts:*

- a. *Make Sensitive Choices in Site Layout. Identify the most sensitive natural areas and, where possible, leave them undeveloped. To the extent possible, set back development from creeks, wetlands, and riparian habitats. Preserve significant trees. Conform the site along natural land forms, avoid excessive grading and disturbance of vegetation and soils, and mimic the site's natural drainage patterns. Where possible, concentrate development on portions of the site with less permeable soils, and preserve areas that can promote infiltration. To the extent possible, limit overall coverage of paving and roofs by designing compact structures, narrower and shorter streets and sidewalks, smaller parking lots, and indoor or underground parking. Where possible, detain and retain runoff throughout the site. Use drainage design elements such as depressed landscape areas, vegetated buffers, and bioretention facilities (consisting of a shallow surface reservoir, a layer of imported planting medium, and a gravel underlayer with perforated pipe underdrains) as amenities and focal points within the site and landscape design.*
- b. *Use Pervious Surfaces. In new buildings and major retrofits, evaluate the technical and economic feasibility of green roofs. Identify where permeable pavements, such as crushed aggregate, turf block, unit pavers, pervious concrete, or pervious asphalt could be substituted for impervious concrete or asphalt paving.*
- c. *Disperse Runoff to Adjacent Pervious Areas. Where possible, direct roof downspouts across pervious areas. A maximum 2:1 ratio between impervious and pervious surfaces is recommended. Receiving pervious areas should be relatively flat, and soils should be amended as needed to promote infiltration. Similarly, parking areas should be designed so that runoff can sheet flow to landscaped areas. Where feasible, use curb cuts or no curbs to allow runoff to flow to vegetated areas.*
- d. *Direct runoff to bioretention facilities, flow-through planters, dry wells, or cisterns. On densely developed sites, and where runoff from impervious roofs and paved areas cannot be dispersed to landscaping, consider directing runoff to facilities designed to detain and treat runoff before letting it seep away slowly. Dry wells or infiltration basins may be used if soils are sufficiently permeable and geotechnical considerations allow. Bioretention facilities can be a suitable option for many sites.*

Continued compliance with existing regulations, along with the policies and implementation measures described above, will reduce potential impacts to water quality to a **less than significant** level.

Potential Degradation of Water Quality and Productivity

Impact 5.13-2 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan within the 20-year and 40 year buildout growth boundaries could result in the discharge of polluted runoff, potentially causing harm to the biological integrity of waterways, violating water quality standards, or otherwise substantially degrading surface water quality. This impact is potentially significant.

Intensified land uses accommodated by any of the Equal-Weight Alternatives would result in increased vehicle use and potential discharge of associated pollutants. Leaks of fuel or lubricants, tire wear, and fallout from exhaust contribute petroleum hydrocarbons, heavy metals, and sediment to the pollutant load in runoff being transported to receiving waters. Runoff from landscaped areas and individual home sites may contain residual pesticides and nutrients. Long-term degradation of the quality of runoff from the site could impact the quality of receiving waters.

As described in Section 5.10, Biological Resources, surface waters provide for a variety of functions for plants and animals, including a water source, habitat, foraging, cover, and migration and movement corridors. Adverse impacts to surface waters in regard to changes to natural flow conditions and water quality can cause detrimental harm to the organisms that rely upon these waters and to biological integrity of the Study Area as a whole.

As previously noted, the City of Patterson operates under a SWRCB General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems also known as MS4s. As required for coverage under this permit, the City has prepared a Storm Water Quality Management Program to implement and enforce Best Management Practices designed to reduce the discharge of pollutants from the City's municipal separate storm drain systems to protect water quality. As described above, these BMPs include public participation and involvement, public education and outreach, construction site runoff control, illicit discharge detection and elimination, pollution prevention and good housekeeping, and post-construction runoff control.

Draft General Plan Policy Response

The draft General Plan provides the following policies related to the protection of water quality from construction related impacts:

Policies

- NR-1.2 Stormwater quality.** The City shall implement measures to minimize the discharge of pollutants and sediment into Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.3 Inter-agency cooperation.** The City shall continue to work with local, state, and federal agencies and other watershed organizations to improve water quality.

- NR-1.3 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.4 New development.** The City shall require new development to protect the quality of water bodies and drainage systems through adaptive site design, stormwater management, and the implementation of best management practices (BMPs).
- NR-1.7 CEQA.** The City shall use the California Environmental Quality Act (CEQA) process to identify and avoid (or mitigate) potential groundwater pollution problems resulting from new urban development.
- NR-2.11 Soil conservation.** The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.
- NR-6.1 Sustainable building practices.** The City will encourage the use of sustainable, energy efficient construction techniques. The City will identify and remove regulatory or procedural barriers to implementing green building practices, such as updating codes, guidelines, and zoning, and will ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- HS-2.14 Runoff control.** The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.
- HS-6.5 Management of hazardous materials.** The City will regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse, and may request applicants to have an emergency response plan.
- PS-2.5 Pollutant requirements.** Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.
- PS-3.13 Surface pollutant control.** The City shall require new development to incorporate runoff control measures to minimize discharge of surface pollutants into drainage systems. Examples of potential programs include:
- The use of “bioswales” and similar features (such as infiltration

- trenches, filter trips, and vegetated buffers) to trap
- contaminants;
- Installation of grease/oil separators to keep these
- contaminants out of storm runoff;
- Regular street sweeping programs to prevent the buildup of oil,
- grease, and other contaminants and keep them from being
- swept into creeks and rivers;
- Minimizing pesticide use and promoting the use of natural pest
- controls;
- Encouraging the installation of “gray water” systems.

PS-3.14 Erosion control. The City shall require new development to incorporate erosion control measures to minimize sedimentation of streams and other natural drainage features.

Implementation Measures

- HS-1 The City shall adopt the most current editions of the California Building Code, California Fire Code, Uniform Plumbing, Mechanical, and National Electric Codes.
- PS-5 The City shall prepare, adopt, review, and periodically update Drainage Master Plans for all new development and annexation areas.
- NR-1 The City shall continue its program of routinely monitoring groundwater quality.
- PS-6 New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of

sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City will require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Additional Mitigation

Policy NR-1.4 is recommended to be amended as follows (in italics):

- NR-1.4 New development.** The City shall require new development to protect the quality of water bodies and drainage systems through adaptive site design, stormwater management, and the implementation of best management practices (BMPs). *The City shall apply the following principles of Low Impact Development in the review of development projects for purposes of minimizing runoff and potential water quality impacts:*

- e. Make Sensitive Choices in Site Layout. Identify the most sensitive natural areas and, where possible, leave them undeveloped. To the extent possible, set back development from creeks, wetlands, and riparian habitats. Preserve significant trees. Conform the site along natural land forms, avoid excessive grading and disturbance of vegetation and soils, and mimic the site's natural drainage patterns. Where possible, concentrate development on portions of the site with less permeable soils, and preserve areas that can promote infiltration. To the extent possible, limit overall coverage of paving and roofs by designing compact structures, narrower and shorter streets and sidewalks, smaller parking lots, and indoor or underground parking. Where possible, detain and retain runoff throughout the site. Use drainage design elements such as depressed landscape areas, vegetated buffers, and bioretention facilities (consisting of a shallow surface reservoir, a layer of imported planting medium, and a gravel underlayer with perforated pipe underdrains) as amenities and focal points within the site and landscape design.*
- f. Use Pervious Surfaces. In new buildings and major retrofits, evaluate the technical and economic feasibility of green roofs. Identify where permeable pavements, such as crushed aggregate, turf block, unit pavers, pervious concrete, or pervious asphalt could be substituted for impervious concrete or asphalt paving.*

- g. *Disperse Runoff to Adjacent Pervious Areas. Where possible, direct roof downspouts across pervious areas. A maximum 2:1 ratio between impervious and pervious surfaces is recommended. Receiving pervious areas should be relatively flat, and soils should be amended as needed to promote infiltration. Similarly, parking areas should be designed so that runoff can sheet flow to landscaped areas. Where feasible, use curb cuts or no curbs to allow runoff to flow to vegetated areas.*
- h. *Direct runoff to bioretention facilities, flow-through planters, dry wells, or cisterns. On densely developed sites, and where runoff from impervious roofs and paved areas cannot be dispersed to landscaping, consider directing runoff to facilities designed to detain and treat runoff before letting it seep away slowly. Dry wells or infiltration basins may be used if soils are sufficiently permeable and geotechnical considerations allow. Bioretention facilities can be a suitable option for many sites.*

Continued implementation of the City's Storm Water Quality Management Program would ensure that effective and adequate Best Management Practices would be in place throughout the Study Area to minimize the pollutant load in storm drainage, thereby protecting surface water quality. In addition, implementation of the above-listed General Plan policies would further protect surface quality by requiring the Storm Water Quality Management Program to be updated to include newly available BMPs. As such, this impact is considered **less than significant**.

Use of Recycled Water for Irrigation and/or Groundwater Recharge

Impact 5.13-3 The expansion of the City's use of recycled water for landscape irrigation and/or groundwater recharge as contemplated under each of the Equal-Weight Alternatives could pose a health risk to future residents and visitors. This impact is considered potentially significant.

The delivery of recycled water will occur in plumbing systems completely separate from the potable supply. Human health risks from recycled water arise mainly from the presence of microbial pathogens in sewage or greywater. Both of these water sources contain a broad range of pathogenic microorganisms, and Title 22 requires that the levels of these must be reduced by treatment so that exposure to recycled water does not pose an unacceptable health risk. A diverse range of chemicals may also be present in sewage and greywater, but human health risks from recycled water produced from these sources and intended for non-potable end-uses are low, provided that contaminant management processes (e.g., restrictions on industrial waste discharge) are effective.

According to a water resources expert (Takashi Asano, Department of Civil and Environmental Engineering, University of California, Davis), there are four water quality factors of particular concern with respect to recycled water:

- Microbiological quality;
- Total mineral content (e.g., total dissolved solids);
- Presence of toxicant of the heavy metal type; and
- Concentration of stable organic substances.

The U.S. EPA Surface Water Treatment Rule (SWTR) (U.S. EPA, 1989) defines an acceptable risk as less than or equal to one pathogen-derived infection per 10,000 in population per year ($\leq 1 \times 10^{-4}$) from use of a public water supply. Therefore, if a 10^{-4} annual risk of infection (less than or equal to one infection per 10,000 population per year) is set as an acceptable risk for water reuse, the reliability of a recycled water system can be calculated as the percent of time that infection risk due to exposure to enteric viruses in reclaimed water is less than the acceptable risk.

The reliability or relative safety of water reuse can be assessed in comparison to domestic water supplies that meet the SWTR. When the disinfected, filtered secondary effluent (tertiary treatment) is chlorinated at about 10 milligrams per liter (mg/L), there is virtually no difference in the probability of enteric virus infection whether reclaimed water or domestic water is used for golf course irrigation, crop irrigation, or groundwater recharge. However, depending on the water quality of the secondary effluent, health risks associated with exposure to recreational impoundments used for body contact sports and swimming may be higher. Similar observations can be made for the use of chlorinated secondary effluent and the reclaimed water from contact filtration with chlorine doses of below 5 mg/L.

Thus, so long as the recycled water meets the SWTR and the water remains out of human contact, the microbial risk associated with crop or landscaping irrigation is no greater than the risk associated with domestic potable water supplies that meet the SWTR. The human health risk associated with expanded use of recycled water is therefore less than significant.

Implementation of the City's water supply program, as set forth in Appendix 5.4, to provide increased amounts of recycled water for non-potable uses, would not have an unmitigated significant effect on the environment.

Draft General Plan Policy Response

Compliance with U.S. EPA Surface Water Treatment Rule (SWTR) as well as, State and local regulations will reduce potential impacts associated with the expanded use of recycled water to a less than significant level.

Potential Degradation of Groundwater Quality

Impact 5.13-4 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan within the 20-year and 40 year buildout growth boundaries could result in the degradation of groundwater quality resulting from construction and operation of future land uses. This is considered a potentially significant impact.

As discussed above, development of the Study Area under any of the Equal-Weight Alternatives could generate runoff containing oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), household pollutants, nutrients (e.g., fertilizers and pet waste), and other chemicals from landscaped areas. In addition, the City has an extensive system of retention basins to manage runoff and will continue to employ retention and detention basins to manage runoff associated with buildout of any of the Equal-Weight Alternatives. Storm water collected in these basins would likely contain some of the pollutants described above originating on area streets and developed sites.

These pollutants could potentially contaminate groundwater conditions (if not properly treated with water quality controls) as runoff percolates into the soil. However, as noted above, the statewide NPDES permits for construction runoff, dewatering and other low threat releases to surface water, and discharges from municipal storm drain systems (MS4s) require the provision of water quality control measures that would protect groundwater quality from future development activities.

The California Storm Water Best Management Practices Handbook prepared by the California Stormwater Quality Association concludes that water quality control features such as infiltration basins have been successful in controlling water quality and avoiding groundwater quality impacts. As runoff infiltrates into the ground, particulates and attached contaminants such as metals and nutrients are removed as they become attached to soil particles. Dissolved constituents are also absorbed by soil particles (EPA, 1999). Depth to groundwater within the Study Area varies but is generally greater than 50 feet below ground surface, providing more than sufficient depth for infiltration (DWR, 2006). Therefore, any remaining pollutants in runoff will not significantly contaminate groundwater supplies.

Draft General Plan Policy Response

The draft General Plan provides the following policies related to the protection of groundwater quality:

Policies

- NR-1.2 Stormwater quality.** The City shall implement measures to minimize the discharge of pollutants and sediment into Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.3 Inter-agency cooperation.** The City shall continue to work with local, state, and federal agencies and other watershed organizations to improve water quality.
- NR-1.4 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- NR-1.5 New development.** The City shall require new development to protect the quality of water bodies and drainage systems through adaptive site design, stormwater management, and the implementation of best management practices (BMPs).
- NR-1.7 CEQA.** The City shall use the California Environmental Quality Act (CEQA) process to identify and avoid (or mitigate) potential groundwater pollution problems resulting from new urban development.
- NR-1.8 Well monitoring.** The City shall regularly monitor water quality in City wells for evidence of toxics, saltwater intrusion, and other contaminants.
- NR-2.11 Soil conservation.** The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.
- NR-6.1 Sustainable building practices.** The City will encourage the use of sustainable, energy efficient construction techniques. The City will identify and remove regulatory or procedural barriers to implementing green building practices, such as updating codes, guidelines, and zoning, and will ensure that all plan review and building inspection staff are trained in green building materials, practices, and techniques
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- HS-2.14 Runoff control.** The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.

- HS-6.5 Management of hazardous materials.** The City will regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse, and may request applicants to have an emergency response plan.
- PS-2.5 Pollutant requirements.** Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.
- PS-3.13 Surface pollutant control.** The City shall require new development to incorporate runoff control measures to minimize discharge of surface pollutants into drainage systems. Examples of potential programs include:
- The use of “bioswales” and similar features (such as infiltration
 - trenches, filter trips, and vegetated buffers) to trap
 - contaminants;
 - Installation of grease/oil separators to keep these
 - contaminants out of storm runoff;
 - Regular street sweeping programs to prevent the buildup of oil,
 - grease, and other contaminants and keep them from being
 - swept into creeks and rivers;
 - Minimizing pesticide use and promoting the use of natural pest
 - controls;
 - Encouraging the installation of “gray water” systems.
- PS-3.14 Erosion control.** The City shall require new development to incorporate erosion control measures to minimize sedimentation of streams and other natural drainage features.

Implementation Measures

- HS-1** The City shall adopt the most current editions of the California Building Code, California Fire Code, Uniform Plumbing, Mechanical, and National Electric Codes.
- PS-5** The City shall prepare, adopt, review, and periodically update Drainage Master Plans for all new development and annexation areas.
- NR-1** The City shall continue its program of routinely monitoring groundwater quality.
- PS-6** New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City will require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Continued implementation of the City's Storm Water Quality Management Program would ensure that effective and adequate Best Management Practices would be in place throughout the Study Area to minimize the pollutant load in storm drainage, thereby protecting surface water quality. In addition, implementation of the above-listed General Plan policies and recommended policy and implementation measure would further protect groundwater quality. Accordingly, this impact is considered **less than significant**.

Additional Mitigation Measures

None required.

Construction of Drainage Infrastructure

Impact 5.13-5 Supplying storm drainage facilities to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40 year buildout growth boundaries will require the extension of storm water conveyance and storage infrastructure into previously un-served areas. This impact is considered potentially significant.

The City does not currently supply storm water drainage to areas outside the City limits; land within the Study Area is largely in agricultural use. Supplying storm drainage infrastructure to expansion areas will require the construction of storm water collection, storage/retention and conveyance infrastructure. Construction of storm water infrastructure would be subject to project-specific environmental review. Potential construction-related impacts include:

- Air quality: emissions associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources can be found in Section 5.10.
- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use. Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.
- Traffic: construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- Water quality: earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- Geology and Soils: construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9- Geology and Soils.

The storm water facilities to be constructed would be consistent with the City's existing drainage infrastructure. Accordingly, implementation of the additional distribution system would complement, rather than adversely impact, the City's existing storm water collection system.

The precise location of storm water collection facilities has not been identified at this time, but would generally reflect the schematic system shown on Figures 5.13-8, 5.13-9 and 5.13-10. These improvements

are expected to be constructed on agricultural land within the Study Area that currently provides some measure of biological resource value. Impacts associated the permanent loss of agricultural land are discussed under impact 5.11-1 of section 5.11 Agricultural Resources. Impacts associated with biological resources are discussed in Section 5.10 Biological Resources. Therefore the construction of storm water infrastructure is considered a **potentially significant impact**.

Mitigation Provided By Existing Regulations

Chapter 6.44 of the Patterson Municipal Code states that construction-related noise-generating activities that would result in a disturbance at nearby noise-sensitive land uses are discouraged between the hours of 8:00 p.m. and 10:00 p.m. and typically prohibited between the hours of 10:00 p.m. and 6:00 a.m. The Community Development Director, or designated representative, may exempt certain construction work when unforeseen or unavoidable conditions occur during a construction project and the nature of the project necessitates that work in process be continued until a specific phase is completed or until such time that work stoppage would not jeopardize the inspection or acceptance of a project or create undue hardships for the contractor or property owners (Patterson Municipal Code, 2009).

Draft Policy Document Response

Policies

- AR-1.3 CEQA.** The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- AR-1.4 Air quality mitigation.** The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- AR-5.1 Particulates from grading.** The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.
- NR-1.3 Sedimentation.** The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.

Implementation Measures

- AR-1** Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.

- AR-2 Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts guidance manual.
- HS-6 Prior to approval of a noise-sensitive use exposed to existing or projected noise exceeding the standards of the General Plan, an acoustical analysis shall be required. The acoustical analysis shall comply with the requirements set out in Table HS-2 of the Policy Document.
- PS-6 New development shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction and life of the project whether or not the development site is over one acre. The SWPPP shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.

The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, and must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046 monitoring would be required during the construction period for pollutants that may be present in the runoff that are “not visually detectable in runoff.”

BMPs designed to reduce erosion of exposed soil may include, but are not limited to, soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins.

If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions.

- PS-7 The City will require the preparation of Project Stormwater Management Plans (SMP) to be reviewed and approved by the City Engineer for development projects as required by State law. The SMP shall provide operations and maintenance guidelines for all of the BMPs identified in the SMP, include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development (including roof and sidewalk runoff), and clearly identify the funding sources for the required ongoing maintenance. The project sponsor or the consultant retained by the sponsor to prepare the SMP shall thoroughly review and comply with the requirements of the most current municipal Phase II General Permit for storm water discharges (Order No. 2003-0005-DWQ). In general, passive, low-maintenance BMPs are preferred.

The City of Patterson Department of Public Works shall ensure that the Project Stormwater Management Plan is prepared prior to approval of any grading plans. The City of Patterson Department of Public Works shall review and ensure that the SWPPP for each development

project within the Plan Area complies with or updates the Project Stormwater Management Plan.

Recommended Additional Mitigation

Recommended mitigation AR-6 in section 5.7-Air Quality and Climate Change, and measure HS-10 in Section 5.10-Noise, require the following:

AR-6 The City will require all of the following as a condition of project approval:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track-out (earth material deposited on City streets by construction equipment) shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track-out.
- Limit traffic speeds on unpaved roads to 15 mph;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- Install wind breaks at windward side(s) of construction areas;
- Suspend excavation and grading activity when winds exceed 20 mph; and
- Limit area subject to excavation, grading, and other construction activity at any one time. Regardless of wind speed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

HS-10 The City will require the following as a condition of project approval to mitigate the adverse noise effects of construction-related activities:

- Construction activities shall be restricted to the hours between 7:00 a.m. and 7:00 p.m., Monday through Friday, and between 9:00 a.m. and 7:00 p.m. on Saturday, with no construction on

Sundays or federal and state holidays; minor construction equipment servicing and maintenance will be exempted from this restriction.

- During construction, mufflers shall be provided for all heavy construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
- Stationary noise sources and staging areas shall be located as far as is feasible from existing residences, or contractors shall be required to provide additional noise-reducing engine enclosures (with the goal of achieving approximately 10 dBA of reduction compared to uncontrolled engines).
- Air compressors and pneumatic equipment shall be equipped with mufflers, and impact tools shall be equipped with shrouds or shields.
- If for construction purposes, locating stationary construction equipment near existing residential uses is required, an eight-foot-tall sound rated fence shall be erected between the equipment and the sensitive receptor. The fence shall be located as close to the equipment as is feasible.
- Construction vehicle access routes shall be designed to minimize the impact on existing residences and occupied hospital facilities.
- A "construction liaison" shall be designated to ensure coordination between construction staff and neighbors to minimize disruptions due to construction noise. Occupants and property owners of residences within 400 feet of construction activity shall be notified in writing of the construction schedule and the contact information for the construction liaison.
- A qualified acoustical engineer shall be retained during the construction phase of the project to determine if the noise levels generated from construction equipment at the project site to adjacent property lines are within the standards.

Lastly, continued compliance with relevant provisions of the Clean Water Act regarding the protection of surface and groundwater quality will ensure impacts to water quality associated with development accommodated by any of the Equal-Weight alternatives will be less than significant. Specifically:

Compliance with the City's Small MS4 General Permit Best Management Practices before, during and after construction; Such BMPs include:

- Good housekeeping activities such as storing of materials covered and elevated off the ground, in a central location.
- Securely locating portable toilets away from the storm drainage system and performing routine maintenance.
- Providing a central location for concrete washout and performing routine maintenance.
- Providing several dumpsters and trash cans throughout the construction site for litter/floatable management.
- Covering and/or containing stockpiled materials and overall good housekeeping on the site.

For projects disturbing more than one acre of land during construction continuing to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. Under the provisions of the City's General Permit, a developer must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site, as noted above under General Construction Permit.

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of water supply infrastructure. In addition, the construction of water facilities will be subject to project-specific environmental review.

The City shall implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of storm water facilities. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new storm water infrastructure will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

Additional Mitigation

None available.

Increased Runoff and Potential Flooding

Impact 5.13-6 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan within the 20-year and 40 year buildout growth boundaries would increase impervious surfaces and alter drainage conditions and rates within the Study Area, which in turn could result in increased runoff and potential flooding impacts. This is considered a potentially significant impact.

Development accommodated by the Equal-Weight Alternatives could result in a significant increase in the amount of impervious surfaces within the Study Area, as summarized on Table 5.13-2, with a corresponding increase in the volume and velocity of storm water runoff. As discussed in the Environmental Setting and illustrated by Figure 5.13-3, portions of the Study Area are currently subject to flooding during severe storm events.

As described in the Setting, above, the City has undertaken an ongoing program of storm drainage improvements aimed at minimizing the threat of flooding to urban development. To address potential drainage impacts associated with the Equal-Weight Alternatives, the City of Patterson General Plan Storm Drainage Study was prepared by Boyle Engineering/AECOM, June, 2010 (Appendix 5.13) which provides for the collection, detention and disposal of runoff associated with the Compact Development, Jobs Emphasis or PC Environmental Review Plan alternatives (see Figures 5.13-8, -9 and -10).

The general alignment concept for the storm drainage conveyance system consists of two main drainage alignments connecting to the San Joaquin River as shown in Figure 5.13-11. The northern alignment generally follows Zacharias Road from west of I-5 to SR-33, with a branch at Rogers Road to serve land adjacent to Rogers Road to the south and land west of I-5 near Sperry Avenue. The alignment then crosses and parallels SR-33 south to Eucalyptus Avenue then parallels Eucalyptus Avenue out to the San Joaquin River. In addition there is a branch for serving the areas proposed for development located between Del Puerto Creek and SR-33 south of the intersection of Baldwin Road and SR-33.

The southern alignment generally follows the alignment of Elfers Road, from west of Salado Creek eastward to Mistletoe Avenue, then north to Bartch Avenue east halfway towards SR-33, then north and northeasterly across SR-33 to Locust Avenue. From here the alignment continues northerly towards Orange Avenue then easterly towards Sycamore Avenue, then northerly to Las Palmas Avenue, and then easterly to the outfall at the San Joaquin River. In addition, there is a branch for serving the areas

proposed for development that lie southeast of the intersection of Elfers Avenue and Mistletoe Avenue, and west of SR-33.

The Storm Drain Master Plan sets forth a program for the construction of storm drainage collection, detention and disposal facilities to convey urban runoff associated with each of the Equal-Weight Alternatives to the San Joaquin River. No runoff will be conveyed to Salado Creek or Del Puerto Creek since the runoff capacity of these creeks is periodically exceeded at present. As development proceeds in accordance with the adopted General Plan, new development will be required to install the applicable portions of the Master Plan needed to serve such development, and/or to pay development impact fees to fund improvements that will serve the community as a whole. Implementation of the improvements described in the Storm Drainage Master Plan, as well as continued implementation of the City's Flood Hazard regulations (described in the Regulatory Setting, above) will help minimize impacts relating to flooding. In addition, the Draft Policy Document provides the following policies and implementation programs aimed at minimizing the potential impacts of flooding:

Draft General Plan Policy Response

The draft General Plan provides the following policies related to drainage, flooding and water quality:

Policies

- HS-2.1 Flood control management.** The City shall prepare and adopt flood management plans and practices aimed at protecting life and property from the harmful effects of flooding. As part of this effort, the City shall establish criteria for:
- a. Evaluating whether new development shall be located in flood hazard zones;
 - b. Identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones, and
 - c. Maintaining the structural and operational integrity of essential public facilities during flooding.
- HS-2.2 Location of essential facilities.** The City shall ensure that new essential public facilities are located outside of flood hazard zones whenever feasible, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or shall identify construction methods or other methods to minimize damage if these facilities are located within flood hazard zones.
- HS-2.3 Cooperation with others.** The City shall establish and maintain cooperative working relationships among public agencies with responsibility for flood protection.
- HS-2.4 FIRM Program.** The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.
- HS-2.5 Flood protection for residences.** New residential development, including mobile homes, shall be constructed so that the lowest floor is at least 12 inches above the 100-year flood level.

- HS-2.6 Flood protection for non-residential development.** Non-residential development shall be anchored and flood-proofed to prevent damage from the 100-year flood or, alternatively, elevated to at least 12 inches above the 100-year flood level.
- HS-2.7 Compliance.** Existing development shall comply with policies HS.2.5. and HS.2.6 when improvements are made that cost at least 50 percent of the estimated current market value of the structure before the improvements.
- HS-2.8 Provision of storm drains.** Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall.
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- HS-2.10 Flooding impacts of new development.** New development with the potential to increase flooding impacts on adjoining or downstream properties shall be prohibited.
- HS-2.11 Priority for flood control improvements.** The City's first priority in preventing risks to life and property resulting from flooding shall be to designate appropriate land uses in areas subject to flooding. Only when this land use-based approach is not sufficient to reduce hazards to life and property to acceptable levels will the City support the construction of new flood control projects.
- HS-2.12 Buildable site.** Parcels shall not be created upon which the presence of easements, floodplain, marsh or riparian habitat, or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.
- HS-2.13 Bridge construction.** New and modified bridge structures shall not cause an increase in water surface elevations of the 100-year floodplain exceeding one foot, unless analysis clearly indicates that the physical and/or economic use of upstream or downstream property will not be adversely affected.
- HS-2.14 Runoff control.** The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.
- HS-2.15 Central Valley Flood Protection Plan.** The City shall continue to work to achieve consistency between the General Plan and applicable flood management practices with the provisions of the Central Valley Flood Protection Plan.

- HS-4.4 Siting of emergency facilities.** Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.

Additional Mitigation Measures

To address potential storm water runoff impacts, the following additional measures are recommended:

- PS-5 The City shall prepare, adopt, review, and periodically update Drainage Master Plans for all new development and annexation areas.
- PS-9 The City shall periodically update its long-term Capital Improvements Programs (CIPs), including sewer, water, drainage, police and fire protection, and other facility improvements.
- PS-11 The City establish and collect development impact fees as needed for public services in accordance with Government Code §66000, et seq.
- HS-15 New development shall be required to implement (through installation or the payment of in-lieu fees) relevant portions of the March 2010 City of Patterson General Plan Storm Drainage Study.

With implementation of the recommended policies and implementation measures described above impacts associated with increased runoff are considered **less than significant**.

Figure 5.13-8: Storm Drainage Master Plan – Compact Development Plan Alternative

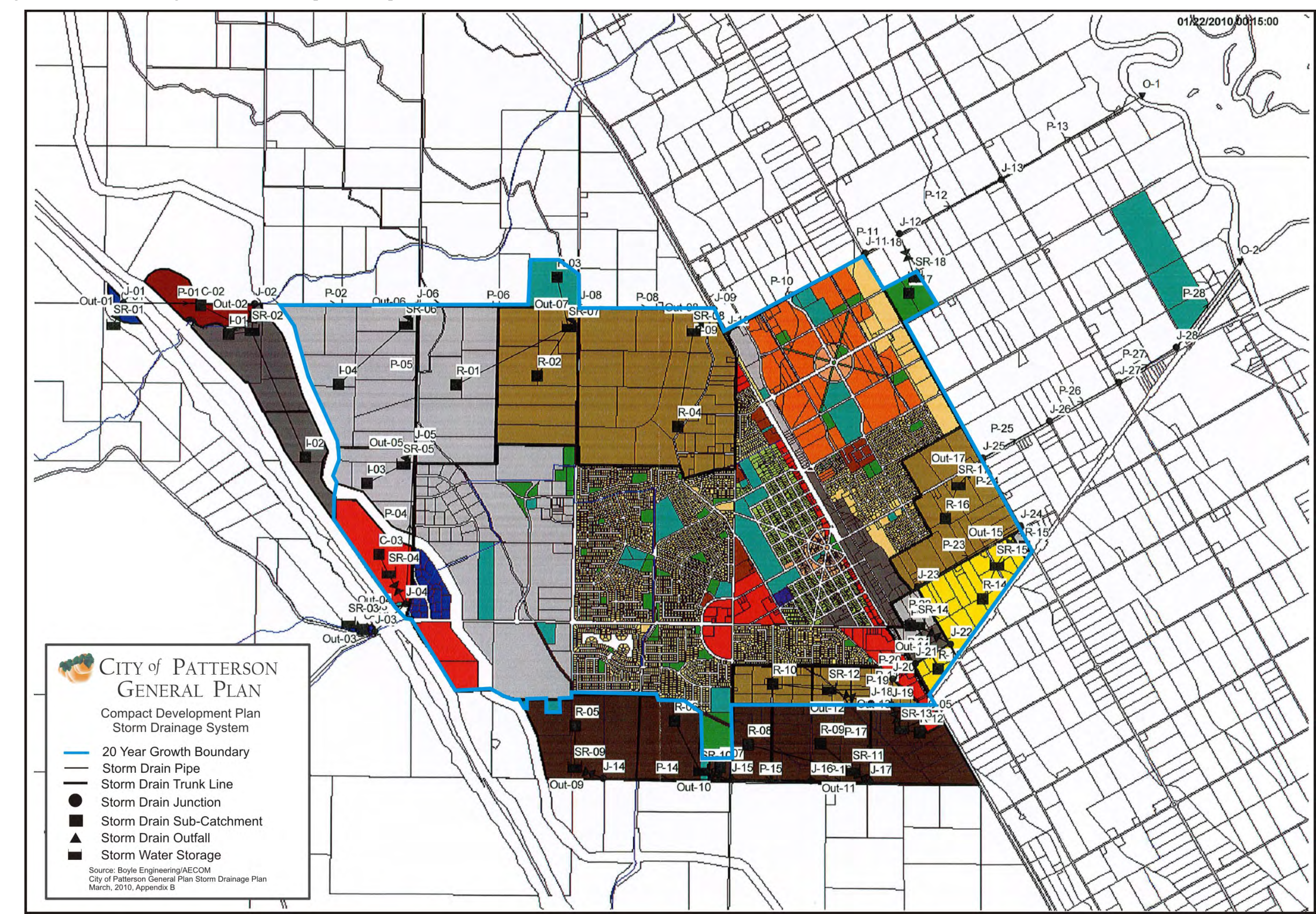


Figure 5.13-9: Storm Drainage Master Plan – Jobs Emphasis Alternative

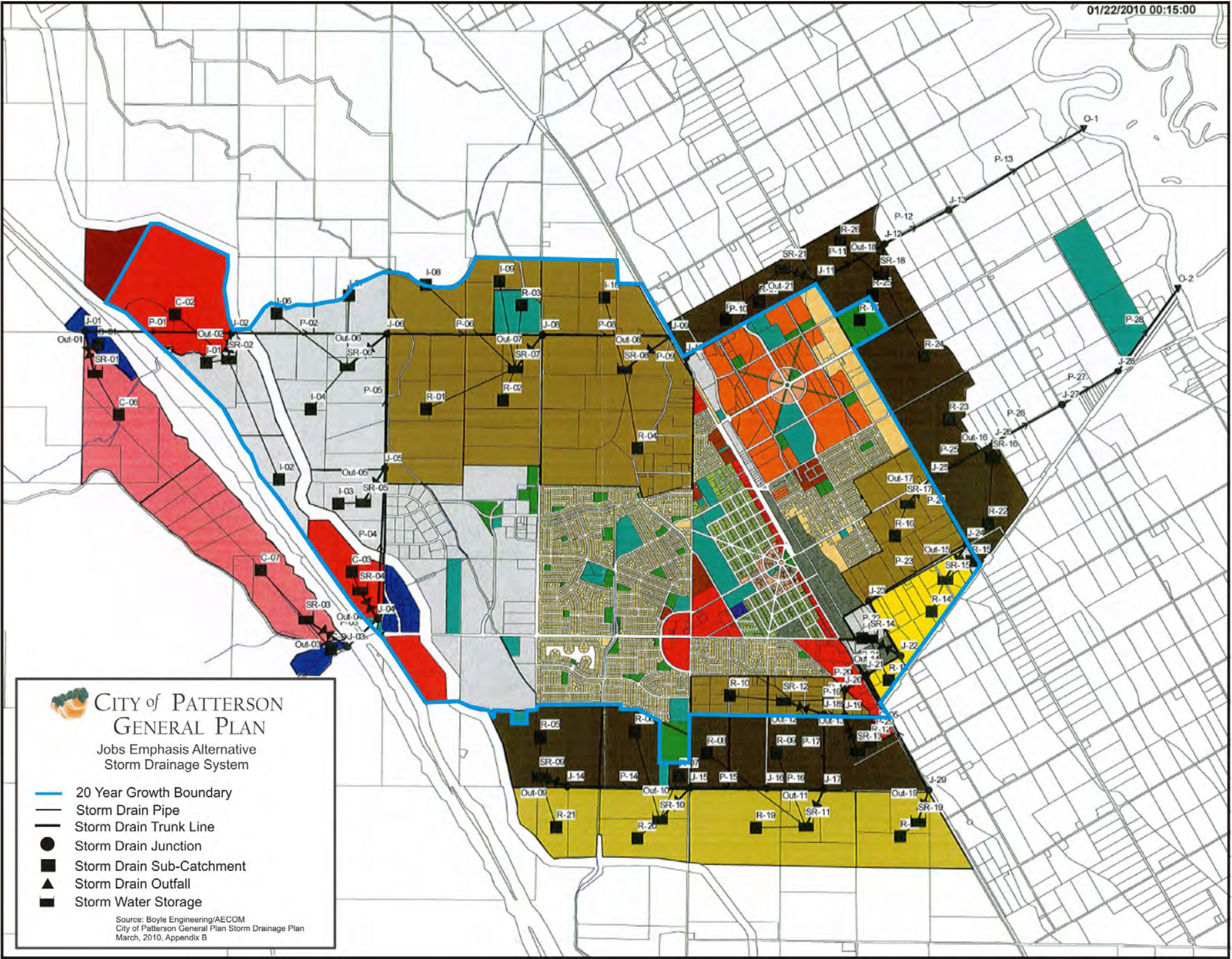
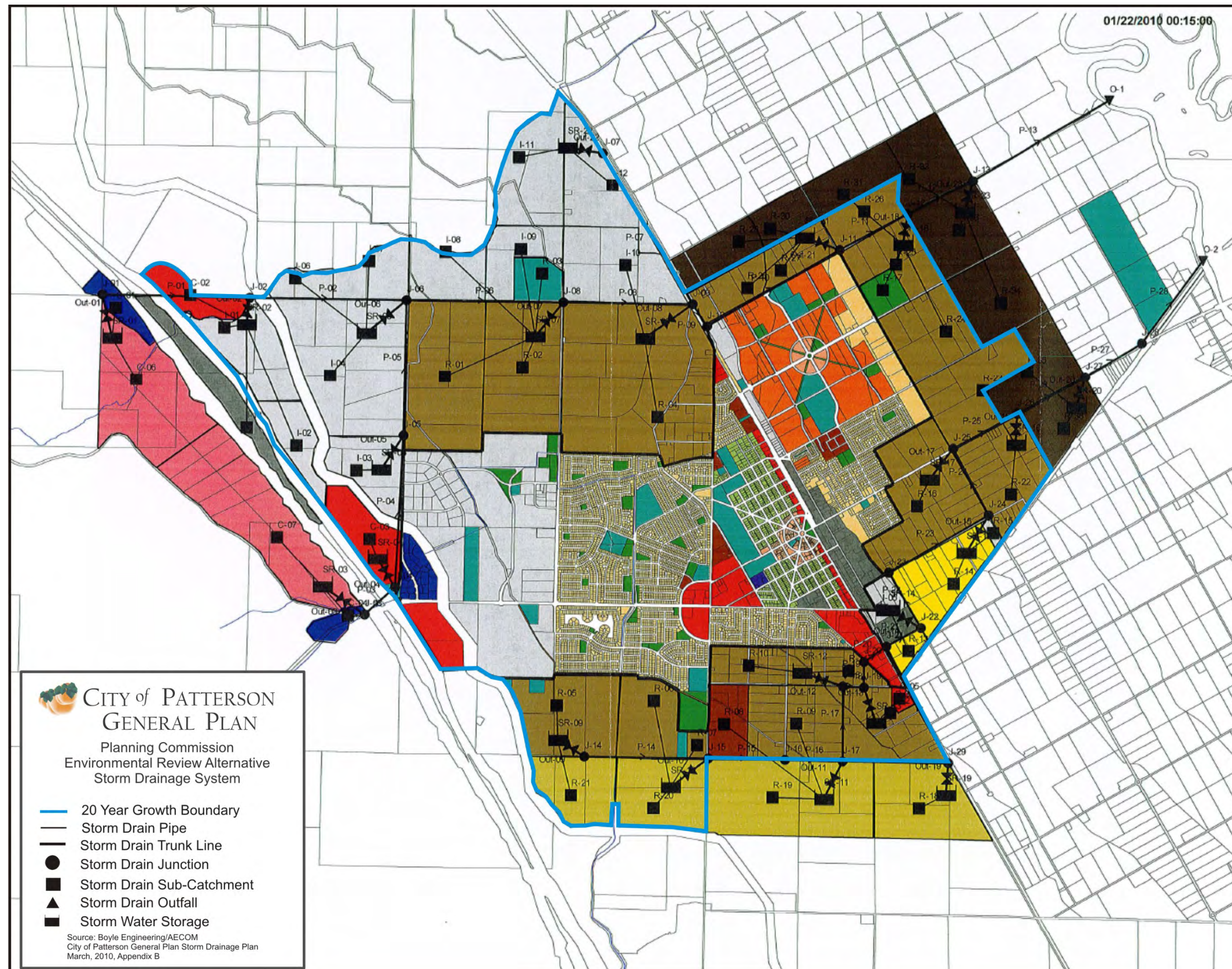


Figure 5.13-10: Storm Drainage Master Plan – Planning Commission Environmental Review Alternative



CITY of PATTERSON ~ General Plan EIR



Development in Areas Subject To Flooding

Impact 5.13-7 Portions of the areas designated for urban development by the Compact Development, Jobs Emphasis and PC Environmental Review Plan are subject to flooding during a 100-year flood event which could expose people and property to the risk of flooding. This is considered a potentially significant impact.

As discussed in the Setting section, portions of the Study Area are subject to flooding during a 100-year storm event. Development areas in the northerly portion of the Study Area between the Delta Mendota Canal and SR-33 are at risk of flooding to a depth of 1 to 3 feet from a 100-year flood event. Additionally, as shown in light grey on Figure 5.13-3, other areas of this northern portion of the Study Area, north of Zacharias Road, are prone to flooding at a depth of less than 1 foot from a 100-year flood event. This flood prone area extends from Del Puerto Creek at the DMC southeasterly towards the northern boundary of the City, and covers approximately 883 acres of the Study Area. This flood zone is contiguous between Del Puerto Creek near Rogers Road and Salado Creek in downtown Patterson. Another smaller area that is identified as at risk for flooding to a depth of greater than 1 foot lies adjacent to SR-33 and south of Del Puerto Creek, and comprises approximately 29 acres within the northern portions of the Study Area.

The last major contiguous area shown as at risk for flooding to a depth of 1 to 3 feet from a 100-year flood event is located adjacent to the north side of the DMC on both sides of Salado Creek, and comprises approximately 162 acres of the Study Area. Most of the Study Area adjacent to Salado Creek, as shown in the light blue, may be at risk for flooding during a 100-year event to depths of less than 1 foot.

The land within each Equal-Weight Alternative subject to potential flooding impacts is summarized on Table 5.13-3.

Table 5.13-3: Areas Within Each Equal-Weight Alternative Subject To Flooding (Acres)			
Location	Compact Development Alternative	Jobs Emphasis Alternative	PC Environmental Review Alternative
North of State Route 33 At Del Puerto Creek	--	1.3	29.4
Del Puerto Creek/Rogers Rd to Ward Rd/Barros St	635.5	883.0	883.0
South Salado Creek	5.5	162.2	162.2
Total:	641.0	1,046.5	1,074.6
Source: Boyle Engineering/AECOM City of Patterson General Plan Storm Drainage Study, June 2010, Table 4.1			

As discussed above under impact 5.13-4, the drainage system proposed to serve each of the Equal-Weight Alternatives does not convey runoff from new urban development to Del Puerto Creek or Salado Creek. Instead, storm water will be collected in detention basins and piped to the San Joaquin River. However,

the areas summarized in Table 5.13-3 would be subject to flood hazards associated with flood events on Del Puerto Creek and Salado Creek. This is considered a potentially significant impact.

The City's existing flood mitigation requirements are summarized in the Regulatory Setting Section, above. These regulations require the finish floor of new development to be certified by a qualified professional to be at least 12 inches above the 100-year flood elevation. This may be accomplished by either raising the building pad or the building foundation or both.

Another approach would be to install flood hazard mitigation along Del Puerto Creek and/or Salado Creek to protect adjoining and downstream areas from flooding. For Del Puerto Creek, such improvements may include, but are not limited to, channelizing portions of the creek, installing levees, and possibly installing detention structures upstream to attenuate peak flows. For Salado Creek, the mitigation of potential flooding may require relatively small amounts of earthwork to fill and grade the area to ensure proper drainage. Similarly, due to the existing flood hazards, no storm water discharges to Salado Creek shall be considered from planned development near the creek without first conducting a study of the potential to induce or increase flooding downstream.

A third approach would be to simply avoid the placement of urban development in areas subject to flooding, or the placement of land uses that would not be damaged by flooding. Such uses include storm-drainage detention basins, groundwater re-charge areas, open space and parks.

Draft Policy Document Response

The draft General Plan provides the following policies related to flooding:

Policies

- HS-2.1 Flood control management.** The City shall prepare and adopt flood management plans and practices aimed at protecting life and property from the harmful effects of flooding. As part of this effort, the City shall establish criteria for:
- d. Evaluating whether new development shall be located in flood hazard zones;
 - e. Identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones, and
 - f. Maintaining the structural and operational integrity of essential public facilities during flooding.
- HS-2.2 Location of essential facilities.** The City shall ensure that new essential public facilities are located outside of flood hazard zones whenever feasible, including hospitals and health care facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or shall identify construction methods or other methods to minimize damage if these facilities are located within flood hazard zones.
- HS-2.3 Cooperation with others.** The City shall establish and maintain cooperative working relationships among public agencies with responsibility for flood protection.
- HS-2.4 FIRM Program.** The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.

- HS-2.5 Flood protection for residences.** New residential development, including mobile homes, shall be constructed so that the lowest floor is at least 12 inches above the 100-year flood level.
- HS-2.6 Flood protection for non-residential development.** Non-residential development shall be anchored and flood-proofed to prevent damage from the 100-year flood or, alternatively, elevated to at least 12 inches above the 100-year flood level.
- HS-2.7 Compliance.** Existing development shall comply with policies HS.2.5. and HS.2.6 when improvements are made that cost at least 50 percent of the estimated current market value of the structure before the improvements.
- HS-2.8 Provision of storm drains.** Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall.
- HS-2.9 Prevention of siltation.** The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- HS-2.10 Flooding impacts of new development.** New development with the potential to increase flooding impacts on adjoining or downstream properties shall be prohibited.
- HS-2.11 Priority for flood control improvements.** The City's first priority in preventing risks to life and property resulting from flooding shall be to designate appropriate land uses in areas subject to flooding. Only when this land use-based approach is not sufficient to reduce hazards to life and property to acceptable levels will the City support the construction of new flood control projects.
- HS-2.12 Buildable site.** Parcels shall not be created upon which the presence of easements, floodplain, marsh or riparian habitat, or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.
- HS-2.13 Bridge construction.** New and modified bridge structures shall not cause an increase in water surface elevations of the 100-year floodplain exceeding one foot, unless analysis clearly indicates that the physical and/or economic use of upstream or downstream property will not be adversely affected.
- HS-2.14 Runoff control.** The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures will consider potential affects to adjacent property owners.

HS-2.15 Central Valley Flood Protection Plan. The City shall continue to work to achieve consistency between the General Plan and applicable flood management practices with the provisions of the Central Valley Flood Protection Plan.

HS-4.4 Siting of emergency facilities. Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.

Implementation Measures

PS-5 The City shall prepare, adopt, review, and periodically update Drainage Master Plans for all new development and annexation areas.

Additional Mitigation Measures

Policies

HS-2.16 Flood hazard mitigation prior to development. The City shall not approve new development in areas subject to a 100-year flood event, based on Federal Emergency Management Agency (FEMA) or on other updated mapping acceptable to the City, unless and until the flood hazard has been mitigated, Such mitigation may be accomplished by one, or a combination of, the following:

- a. Compliance with Title 17 of the City's Municipal Code, Flood Hazard areas.
- b. Installation of flood control improvements along Del Puerto Creek and/or Salado Creek.
- c. Avoidance of flood prone areas.

HS-2.17 Flood hazard mitigation prior to development. The City shall require any development on land subject to a 100- year flood event, based on Federal Emergency Management Agency (FEMA) or on other updated mapping acceptable to the City, to conform to National Flood Insurance Program (NFIP) standards.

HS-2.18 Low Impact Development. New development shall incorporate provisions for low impact development as defined by as minimizing or eliminating pollutants in storm water through natural processes and maintaining pre-development hydrologic characteristics, such as flow patterns, surface retention, and recharge rates.

Implementation Measures

PS-11 The City shall establish and collect development impact fees in accordance with Government Code section 66000, et seq as needed for flood control improvements outlined in the City's 2010 Master Drainage Plan as it may be amended from time to time.

HS-16. Flood mitigation derived by the City's Drainage Master Plan shall address the following objectives:

- a. Compliance with relevant flood protection regulations, including:
 - 1. Those adopted by the City of Patterson;
 - 2. The National Flood Insurance Program;
 - 3. The Central Valley Flood Protection Plan;
- b. Protection of the biological integrity of natural drainage courses;
- c. The incorporation of low impact development requirements for new development;
- d. The prevention of downstream flooding impacts;
- e. The protection of surface and groundwater quality;
- f. Economic feasibility;

Implementation of the recommended policies and implementation measures will help reduce the risk associated with development that may occur in areas subject to flooding. However, the potential impacts associated with floodplain modifications necessary to mitigate potential flooding impacts will not be known until the nature and extent of urban development has been identified through adoption of the General Plan. In addition, approvals necessary from various regulatory agencies, such as the Regional Water Quality Control Board, Department of Fish and Game and the US Army Corps of Engineers cannot be guaranteed. For these reasons potential impacts associated with development in areas subject to flooding are considered **significant and unavoidable**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting includes proposed, planned, reasonably foreseeable, and approved projects within the region (see Section 4.0), as well as full buildout of the City of Patterson in accordance with each of the Equal-Weight Alternatives. Regional growth and development would contribute to impacts to water quality (surface and groundwater) within the region, as well as additional runoff to surface waters.

Cumulative Impacts

Cumulative Degradation of Water Quality

Impact 5.13-8 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives along with foreseeable development in the region would contribute to a cumulative degradation of water quality from construction activities and increased urban runoff. This impact is considered cumulatively considerable.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts will mitigate regional impacts relating to hydrology and water quality. As discussed under impacts 5.13-1 and 5.13-2, urban development accommodated by any of the Equal-Weight Alternatives would increase the amount of sediments and pollutants in surface waters within the Study Area and downstream of the Study Area.

Continued compliance with existing water quality regulations, including the NPDES program, as well as implementation of the policies and programs recommended for impact 5.13-1 as described above would help reduce cumulative impacts to water quality. However, given the scale of development anticipated in the City of Patterson and as described in the general plans of surrounding jurisdictions (see discussion under impact 5.2-3 of section 5.3-Population, Housing and Employment, there is the potential for the cumulative degradation of water quality. Moreover, compliance with water quality regulations in the region cannot be guaranteed by the City. For these reasons, the cumulative impact to water quality is considered **cumulatively considerable and significant and unavoidable**.

Additional Mitigation Measures

None available.

Cumulative Increase in Runoff and Potential Flooding

Impact 5.13-9 Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives along with foreseeable development in the region would increase impervious surfaces and alter drainage conditions and rates in the Study Area, which could contribute to cumulative flood conditions along the San Joaquin River and local waterways. This impact is considered **cumulatively considerable**.

As discussed above under impacts 5.13-4, development accommodated by the Equal-Weight Alternatives would increase the amount of impervious surfaces along with a corresponding increase in the volume and velocity or runoff. This increase in runoff, along with the increase associated with other urban development in the region, could contribute to cumulative flood conditions in the region.

Draft General Plan Policy Response

The improvements recommended by the 2010 Storm Drainage Master Plan are designed to ensure that the contribution of runoff from development of the Study Area does not worsen downstream flooding or exceed the capacity of receiving waters. Thus, implementation of the Master Plan, together with compliance with existing flood hazard mitigation, will help mitigate potential impacts relating to regional flooding and water quality. However, as discussed under impacts 5.13-7 and 5.13-8 the installation of flood control improvements and continued compliance with water quality protection regulations cannot be guaranteed by the City. For these reasons cumulative impacts relating to flooding and water quality are considered **cumulatively considerable and significant and unavoidable**.

Additional Mitigation Measures

None available.

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5.14 VISUAL AND AESTHETIC RESOURCES

Introduction

This chapter describes the structure and appearance of Patterson's environment: both natural and human-made elements. The high visual quality of the rural landscapes and trees and the generally cohesive urban pattern are the major scenic resources in Patterson.

Setting

Patterson is located in California's Great Central Valley. The Central Valley is a vast, nearly flat depositional plain dominated by agricultural land uses. A geometric pattern of orchards, vineyards, row crops, pastures, roads, and canals dominates the landscape.

The towns and cities in the Central Valley form urban islands within the agricultural landscape. Due to the lack of topographic variation and the dense vegetation canopy in most of the older urbanized areas, smaller towns and cities are usually not very visible from outside their immediate boundaries. Concentrations of trees and high structures such as water towers and grain silos are often the only landmarks easily visible from beyond the urbanized areas.

The hills of the Diablo Range form the western edge of the Study Area, and slope gently down to the valley floor. Most of the Study Area is relatively flat. Interstate 5, which traverses the western edge of the Study Area, affords excellent views across the valley to the east. The San Joaquin River, which defines the eastern edge of the Study Area, and a number of irrigation canals are the primary surface hydrologic features. The visibility of these features is generally limited to localized foreground views due to the flat topography and vegetation screening.

Four distinct types of vegetation largely determine the aesthetic character of the Study Area:

- Agricultural croplands such as alfalfa, tomatoes, and other row crops;
- Orchards;
- The extensive tree cover within the developed portions of the city (parks, boulevards, and residential neighborhoods) accented by tall palm trees planted along major paths and activity nodes; and
- Riparian vegetation along the San Joaquin River, Del Puerto Creek and Salado Creek.

Within the city, the extensive tree cover in the residential areas is the predominant scenic resource. The arrangement of these vegetation types forms a strong geometric landscape pattern characterized by a patchwork of broad open fields and densely planted orchards. The small isolated clusters of tall mature trees surrounding many of the older farm buildings add a random vertical punctuation to this otherwise strong, regular pattern. With very few exceptions, the edge of the urban area is visually screened by orchards. As a result, the surrounding agricultural landscape has a high degree of visual cohesiveness, and does not convey the sense of suburban encroachment common in the agricultural areas surrounding many valley towns and cities.

The Pattern of Urban Development

The original Patterson town site is roughly defined by four streets-First Street, C Street, 7th Street, and L Street. The city was planned in the early 1900s by the city's founder Thomas W. Patterson. Patterson envisaged a town of beauty and distinction and used the plan for Washington D.C. as a guiding design precedent. Thus the new town was given a very formal and distinctive urban pattern, with axial and diagonal boulevards emanating from a circular town center.

Outside the city center, these boulevards overlay a square grid which eventually gives way to the larger gridded township pattern of the surrounding agricultural landscape. The eastern portion of the town center abuts the Southern Pacific Railroad alignment and Second Street (Highway 33), the city's major thoroughfare.

The city's major boulevards lead to the downtown and span a gradient of city land uses, serving to unify the entire city.

The dense concentration of mature street trees is a positive urban design asset. The boulevard plantings of mature date palm trees give a magnificent visual quality to the eastern portion of Las Palmas Avenue from First Street to the San Joaquin River and along Sperry Avenue west of Ward Avenue. These palms, planted along Las Palmas at the time of the town's founding, are a distinctive and valuable scenic and historical resource. In other parts of the city, the cover of mature street trees transforms residential streets into lush, shaded arcades. The City of Patterson has achieved high scenic quality and an uncommon degree of visual coherence by following a well-designed street tree plan.

North and South City Parks, which flank Las Palmas Avenue between Second Street and the Plaza circle, provide an excellent public recreation and visual amenity. The strategic location of this park area links Highway 33 and the downtown area, and thus serves as an important gateway to the city.

And lastly, the City possesses several buildings of historic architectural value, including the Historical Museum/Center Building and the Carnegie Library.

Light and Glare

A nighttime sky in which stars are readily visible is often considered a valuable scenic/visual resource. In urban areas, views of the nighttime sky are diminished by "light pollution." Light pollution, as defined by the International Dark-Sky Association, is any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. Two elements of light pollution may affect city residents: sky glow and light trespass. Sky glow is a result of light fixtures that emit a portion of their light directly upward into the sky where light scatters, creating an orange-yellow glow above a city or town. This light can interfere with views of the nighttime sky and can diminish the number of stars that are visible.

Light trespass occurs when poorly shielded or poorly aimed fixtures cast light into unwanted areas, such as neighboring property and homes. Light pollution is a problem most typically associated with urban areas. Lighting is necessary for nighttime viewing and for security purposes. However, excessive lighting or inappropriately designed lighting fixtures can disturb nearby sensitive land uses through indirect illumination. Land uses which are considered "sensitive" to this unwanted light include residences, hospitals, and care homes.

Daytime sources of glare include reflections off of light-colored surfaces, windows, and metal details on cars traveling on nearby roadways. The amount of glare depends on the intensity and direction of sunlight, which is more acute at sunrise and sunset because the angle of the sun is lower during these

times. Light sources include electric signs and parking lot lighting and security from commercial and industrial development; lights from ball fields; street lights; and lighting from on-road motor vehicles.

Regulatory Setting

State Regulations

State Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to state highways. The state regulations and guidance governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. A highway may be designated scenic depending on 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. Scenic corridors consist of land that is visible from the highway right of way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. The city or county must also adopt ordinances, zoning and/or planning policies to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. Interstate 5 in the vicinity of the Study Area has been designated as a state scenic highway.

Nighttime Sky – Title 24 Outdoor Lighting Standards

The California Legislature passed a bill in 2001 requiring the California Energy Commission (CEC) to adopt energy efficiency standards for outdoor lighting for both the public and private sector. In November 2003, CEC adopted changes to the Title 24, parts 1 and 6, Building Energy Efficiency Standards. These standards became effective on October 1, 2005, and included changes to the requirements for outdoor lighting for residential and nonresidential development. The new standards will likely improve the quality of outdoor lighting and help to reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures of the 2000 Census. Areas can be designated as LZ1 (dark), LZ2 (rural), or LZ3 (urban). Lighting requirements for dark and rural areas are stricter in order to protect the areas from new sources of light pollution and light trespass.

Standards of Significance

An aesthetic or visual resource impact is considered significant if implementation of the project would result in any of the following:

1. Have a substantial adverse effect on a scenic vista;
2. Substantially affect scenic resources or scenic views, including trees, rock outcroppings, or historic buildings within a state scenic highway, designated scenic roadway, scenic river corridor, roadway eligible for listing as a scenic roadway/highway or other public vantage point or scenic vista locally known for its scenic qualities;
3. Substantially degrade the existing visual character or quality of the city and its surroundings; or
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Methodology

The assessment of impacts to visual resources is based on a field investigation of the visual and light characteristics of the Study Area and based on the changes to visual and lighting character likely to result from buildout in accordance with the Equal-Weight Alternatives.

Project Impacts and Mitigation Measures

Alteration of Scenic Qualities

Impact 5.14-1 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result have a substantial adverse effect on scenic vistas from Interstate 5 (a State Designated Scenic Highway), and will substantially affect scenic resources and degrade the scenic qualities within the Study Area within the 20-year and 40 year buildout growth boundaries. This impact is considered potentially significant.

Each of the Equal Weight Alternatives will result in expanded urban development outside the current developed area of the City into lands largely devoted to agriculture. Table 5.14-2 provides a comparison of the acres remaining to be developed under each alternative that would be converted from a predominantly agricultural visual character to urban.

Table 5.14-2: Comparison of Potential Increase In Developed Acres Accommodated By Each Equal-Weight Alternative 20- and 40 year buildout Growth Boundaries Combined				
	Existing Developed Area	Compact Development	Jobs Emphasis	PC Env. Review Plan
Acres:	2,694	4,970 ¹	8,771 ¹	9,752 ¹
Notes: 1. Increase in developed acres over existing in 2009. Gross acres inclusive of streets, parks, canals, schools and other similar uses.				

Each of the Equal-Weight Alternatives will accommodate additional urban development which will permanently and substantially alter the visual character and scenic qualities of the Study Area. **This impact is considered potentially significant.**

As discussed above, Interstate 5 is a designated Scenic Highway from the Merced County line to the south to the San Joaquin County line to the north; the Study Area lies about mid-way between these two boundaries. Development accommodated by each of the Equal-Weight alternatives will significantly alter the scenic qualities of views from this Scenic Highway. **This impact is considered potentially significant.**

The Jobs Emphasis and PC Environmental Review alternatives designate land for urban development in the foothills of the Diablo Range west of Interstate 5. The foothills serve as the visual backdrop to the City and are visible from a number of vantage points throughout the City, including frequently traveled corridors such as Sperry Avenue. The impact of urban development on the visual quality of the Study Area is considered **significant unless mitigated**.

Mitigation Provided By Existing Regulations

City of Patterson Zoning Regulations

Development accommodated by the existing General Plan is subject to discretionary review in accordance with the City's Zoning Ordinance (Title 18 of the Patterson Municipal Code). New development is subject to site plan and architectural review. The aesthetic and visual qualities of new development are considered as part of discretionary review, which is also subject to the provisions of the California Environmental Quality Act.

Community Design Guidelines and Downtown Physical Design Plan

The City's adopted Design Guidelines set forth the City's expectations for the visual and aesthetic qualities desired in new development and are intended to ensure new development complements the visual character of the City.

West Patterson Business Park Master Development Plan

The West Patterson Business Park Plan contains design guidelines that apply to all new development. As with the City's Community Design guidelines, the intent is to ensure new development is consistent with the City objectives for quality and character.

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact of future population growth, including the following:

Policies

LU-1.1 Development strategy. The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of "complete" neighborhoods, incorporating the following characteristics:

- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
- b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- e. Short blocks with a substantial tree canopy shading the street and sidewalk;
- f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
- g. A sense of personal safety;
- h. Elements that foster the sustainable use of scarce or non-renewable resources.

LU-1.4 Planned development requirement — Mixed Use Hillside Development. Development of areas designated Mixed Use Hillside Development shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:

- a. **Land use plan.** Each planned development application will include a land use diagram that clearly identifies the uses allowed in each portion of the site based on the land use designations described in Part I – Land Use Diagrams and Standards. The land use plan will incorporate the range of uses described in Table LU-2, generally consistent with the percentages for each land use category.

Table LU-2: Target Land Use Requirements for Areas Designated <i>Mixed Use Hillside Development</i>	
Land Use Category	Gross Acreage ¹
Estate Residential	50% - 60% of total acreage on slopes with an average slope of less than 20 percent ⁴
Low Density Residential	
Neighborhood Commercial	5 acres per 10,000 residents of project
Developed Parkland ²	5 acres per 1,000 residents of project
Permanent Open Space	All areas not included in one of the other allowable land use designations.
Public/Quasi-Public ³	As determined by service provider

Notes:

1. Total acreage of the project site before subdivision.
2. Acreage of parkland exclusive of drainage detention basins.
3. Includes school sites, city facilities such as police and fire stations, storm drainage facilities.
4. Acreage exclusive of affordable housing inclusionary requirements.

- b. **A description of housing products.** Each planned development application shall describe the range of housing products allowed within the project. The description shall include:
 - i. Building type;
 - ii. Gross residential density for each product type;
 - iii. Building elevations;
 - iv. Number of bedrooms;
 - v. Colors and materials;
 - vi. Tenure (for-sale, for rent);
 - vii. Target income group by product type.

- c. **General development standards.** These standards shall be applied to all development regardless of land use category and shall address such topics as site access, minimum lot size to accommodate slopes and view protection, energy efficiency and sustainability, fences/screening, noise mitigation, outdoor lighting standards, and the placement of utilities.
- d. **Land use specific development standards.** The planned development application shall describe the site development standards to be applied to new development by each land use category.
- e. **Compliance with Federal and State Endangered Species Acts.** No application for a planned development application in the Mixed Use Hillside Development designation shall be approved until all relevant provisions of the federal and State endangered species acts have been satisfied.
- f. **Services and infrastructure plans.** Infrastructure plans for water supply, wastewater collection and treatment, storm water runoff, and circulation shall be required. In addition, the planned development shall describe the provision of necessary facilities, equipment and staffing for police and fire protection, parks and recreation, and schools.
- g. **Infrastructure financing program.** Each planned development shall be accompanied by an infrastructure financing program which sets forth the method of revenue generation (e.g. special district, etc.), the obligations of the project and the City towards the cost of infrastructure necessary to serve the project.
- h. **Phasing plan.** Each planned development application shall be accompanied by a phasing plan which describes the following:
 - i. The boundaries of each phase reflecting a logic order of development;
 - ii. The number of dwelling units in each phase by tenure and target income group, and the acreage and estimated building floor area for each non-residential land use type;
 - iii. Infrastructure plans for each phase, including water supply, wastewater collection, storm drainage and circulation, along with the location and acreage designated for other public facilities required for each phase. Such facilities may include, but is not limited to, school sites, police and fire protection facilities and parks.
- i. **Geotechnical investigation.** Each planned development application within the area designated Mixed-Use Hillside Development shall be accompanied by a geotechnical investigation to address the following:
 - i. Areas subject to slope instability or other geologic hazard and areas with slopes in excess of 20 percent shall be identified and mapped; the resulting acreage shall be deducted from the gross acreage for purposes of determining the allowable developable area.
 - ii. The geotechnical investigation shall recommend appropriate grading, drainage, building foundations, and road improvement requirements suitable to the soils, slope and other characteristics of the site.

- LU-1.6 Small town character.** The City shall seek to preserve Patterson’s traditional small-town qualities and agricultural heritage, while increasing its residential and employment base.

- CD-1.5 Preserve historic urban form.** The City shall use Patterson’s historic urban forms as the basis for the western extension of the downtown commercial/civic core and surrounding residential neighborhoods.

- CD-1.6 Scenic palm-lined corridor.** The City shall create and maintain a continuous scenic corridor lined with palm trees extending along East Las Palmas Avenue from near the San Joaquin River west along Las Palmas Avenue through downtown to its planned intersection with Sperry Avenue, and then west along Sperry Avenue to Interstate 5.

- CD-1.7 Maintain a distinct urban edge.** The City shall seek to maintain a distinct agricultural definition to the urban edge of the city as a means of emphasizing Patterson’s small-town qualities and agricultural heritage.

- CD-2.1 Downtown character.** The City shall promote the development of a well-defined, pedestrian-oriented downtown by preserving and enhancing the existing downtown. The downtown shall include commercial, civic, residential, cultural, and recreational uses, and shall serve all segments of the community. The commercial/civic core of downtown shall be defined as the existing downtown area, focused on the circle.

- CD-3.1 Respect neighborhood scale and character.** In approving new or infill development, the City shall respect existing neighborhood scale and character.

- CD-3.2 Neighborhood design.** The City shall promote the creation of well-defined residential neighborhoods in newly-developing areas. Each of these neighborhoods shall have a clear focal point, such as a park, school, or other open space and community facility, and shall be designed to promote pedestrian convenience. To this end, the City shall encourage the use of existing Patterson neighborhoods, including the grid street system, as models for the planning and design of new residential neighborhoods.

- CD-3.3 Pedestrian amenities for commercial areas.** New commercial and office development shall promote pedestrian convenience, especially in the downtown.

- CD-4.1 Street trees.** The City shall endeavor to protect the urban forest created by mature trees in existing developed areas and in newly developing areas.

- CD-4.2 Extending the established pattern of landscaping.** The City shall require that all new development incorporate the planting of trees and other vegetation that extend the vegetation pattern of older adjacent neighborhoods into new development.

- CD-4.3 Boulevard planting.** The City shall extend and reinforce major street tree/boulevard plantings to enhance the visual character of special and important streets within Patterson.

- CD-4.4 Landscaped medians.** The City shall identify appropriate streets for inclusion of landscaped medians.
- CD-5.1 Hillside development.** Development on the hillsides shall:
- Keep a low profile and conform to the natural slopes;
 - Avoid large, continuous walls or roof surfaces, or prominent foundation walls, poles, or columns;
 - Minimize grading of roads;
 - Minimize grading on individual lots; generally, locate houses close to the street;
 - Minimize the grading of visible driveways;
 - Include planting which is compatible with native hillside vegetation and which provides a visual transition from developed to open areas;
 - Use materials, colors, and textures which blend with the natural landscape and avoid high contrasts;
 - Minimize exterior lighting.
- NR-1.1 Open space conservation.** The City shall conserve open space areas and drainage canals to protect water resources within the local watershed and the San Joaquin River.
- NR-2.1 Agricultural land preservation.** Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.
- NR-2.2 Compact development.** The City shall encourage infill development within existing urbanized areas of the city in order to minimize pressure to convert agricultural lands to urban uses. Conversely, the City shall support the continuation of agricultural uses on lands for urban uses until urban development is imminent.
- NR-2.3 Greenbelt.** The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.
- NR-2.4 Support for County agricultural land preservation.** The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.
- NR-2.5 Regional farmland preservation.** The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.
- NR-2.6 Financial incentives.** The City shall support tax and economic incentives, at both the local and state levels, to enhance the economic competitiveness of agricultural exports.
- NR-2.9 Williamson Act.** The City shall allow cancellation of Williamson Act contracts only if the City Council finds that cancellation is consistent with State law.
- NR-3.8 Riparian habitat protection.** The City shall preserve the ecological integrity of creek corridors, canals, and drainage ditches that support riparian resources by preserving native riparian

plants and, to the extent feasible, removing invasive nonnative plants. If preservation of the ecological integrity of existing resources is found to be infeasible, adverse impacts to riparian resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations. (see also Implementation Measures and Appendix NR)

NR-3.9 Wetland protection. The City shall preserve and protect wetland resources including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetland areas, to the extent feasible. If preservation of the ecological integrity of existing wetland resources is found to be infeasible, adverse impacts to such resources shall be fully mitigated consistent with the requirements of applicable state and federal regulations. (see also Implementation Measures and Appendix NR)

NR-3.11 Open space conservation. The City shall continue to preserve, protect, and provide access to designated open space areas that may be established along the San Joaquin River, Del Puerto Creek, and undevelopable floodplains.

Implementation Measures

CD-1 The City shall implement the Community Design Guidelines and Downtown Physical Design Plan.

NR-C The City shall develop an Agricultural Conservation Program to help mitigate the permanent conversion of productive farmland to a non-agricultural use. Such a program shall address at least the following:

1. The establishment of a ratio of comparable agricultural lands to be permanently protected for each acre converted to a non-agricultural use.
2. Criteria for assessing the suitability of agricultural lands to be permanently protected.
3. Options for satisfying the required ratio of preserved agricultural land for each acre converted to a non-agricultural use. Such options may include, but are limited to the payment of an in-lieu fee sufficient to purchase a farmland conservation easement, farmland deed restriction, or other permanent farmland conservation mechanism.

NR-F The City shall investigate a mechanism for funding the acquisition and management of lands for mitigation land bank for impacts to biological and/or agricultural resources.

The policies listed above apply to each Equal-Weight alternative and will help minimize impacts relating to visual and aesthetic resources. Implementation of any of the Equal-Weight Alternatives will nonetheless result in the permanent and significant alteration of the scenic qualities of the area, including views from a State designated Scenic Highway. There are no feasible mitigation measures available to mitigate this change. Accordingly, this impact is considered **significant and unavoidable**.

Additional Mitigation

None is feasible.

Lighting and Glare

Impact 5.14-2 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result in the introduction of additional light and glare from expanded urban development within the 20-year and 40 year buildout growth boundaries into areas currently dominated by agricultural operations. This impact is considered less than significant.

Day time glare results from the reflection of sunlight from walls, windows and other reflective surfaces. Expanded urban development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would include new buildings consisting of windows and other reflective materials associated with walls and roofing which in turn will increase the amount of daytime glare. Infill development within the existing urban area would result in a less pronounced change from additional glare than the development of areas currently occupied by agricultural operations.

In addition, expanded urban development will introduce new sources of light in areas that currently have few if any light sources. Nighttime light levels would increase significantly in these areas over current conditions, regardless of the Equal-Weight Alternative chosen. These new light sources could result in impacts to adjacent land uses from the “spill over” of light associated with signage, parking lot lighting and security lights. Lastly, traffic generated by new development will result in an increase in nighttime lighting from on-road motor vehicles.

Mitigation Provided By Existing Regulations

City of Patterson Zoning Regulations

Development accommodated by the existing General Plan is subject to discretionary review in accordance with the City’s Zoning Ordinance (Title 18 of the Patterson Municipal Code). New development is subject to site plan and architectural review. Impacts associated with light and glare are addressed as part of discretionary review, which is also subject to the provisions of the California Environmental Quality Act.

Community Design Guidelines and Downtown Physical Design Plan

The City’s adopted Design Guidelines set forth the City’s expectations for the visual and aesthetic qualities desired in new development and are intended to ensure new development complements the visual character of the City. The Design Guidelines include the following recommendations for the placement of lighting to mitigate impacts to surrounding land uses:

5. On-site lighting.
 - a. Exterior lighting shall be designed to be compatible with the architectural and landscape design of the project.
 - b. An appropriate hierarchy of lighting fixtures/structures and intensity shall be considered when designing the lighting for the various elements of a project (i.e., building and site entrances, walkways, parking areas, or other areas of the site).
 - c. The use of exterior lighting to accent a building’s architecture is encouraged. All lighting fixtures shall be properly shielded to eliminate light and glare from impacting adjacent properties, and passing vehicles or pedestrians. When neon tubing is used to illuminate portions of a building it shall be concealed from view through the use of parapets, cornices or ledges. Small portions of exposed neon tubing may be used to add a special

effect to a building's architecture but this must be well thought out and integrated into the overall design of the project.

- d. To achieve the desired lighting level for parking and pedestrian areas, the use of more short, low intensity fixtures is encouraged over the use of a few tall fixtures that illuminate large areas.

West Patterson Business Park Master Development Plan

The West Patterson Business Park Plan contains design guidelines that apply to all new development. As with the City's Community Design guidelines, Master Plan addresses lighting impacts associated with new industrial development.

Draft General Plan Policy Response

The draft General Plan includes the following policies that address the management of light and glare from new development, including the following:

Policies

LU-1.1 Development strategy. The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of "complete" neighborhoods, incorporating the following characteristics:

- a. A mix of housing products and densities serving the broadest range of households, incomes and ages;
- b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;
- c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;
- d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;
- e. Short blocks with a substantial tree canopy shading the street and sidewalk;
- f. Connectivity to surrounding neighborhoods, regional retail centers and employment;
- g. A sense of personal safety;
- h. Elements that foster the sustainable use of scarce or non-renewable resources.

NR-2.3 Greenbelt. The City shall encourage the County to retain agricultural uses on lands surrounding the City's General Plan area and on lands within the General Plan area pending their annexation to the City or development by mutual agreement with the City.

Implementation Measures

CD-1 The City shall implement the Community Design Guidelines and Downtown Physical Design Plan and the West Patterson Business Park Master Development Plan.

Additional Recommended Mitigation

CD-3.5 Light and Glare. To reduce the adverse impact of light and glare associated with new development (including street lighting, recreational facilities and parking), the City shall require new development to be designed to prevent artificial lighting from illuminating

adjacent residential neighborhoods or natural areas at a level greater than one foot-candle above ambient conditions.

The City's existing regulations, combined with the recommended policies and implementation recommended described above will reduce light and glare impacts associated with each of the Equal-Weight Alternatives to **less than significant**.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The setting for cumulative impacts includes the General Plan Study Area and reasonably foreseeable development within the region. As discussed in the description for Equal-Weight Alternatives, buildout is not expected to occur within the 20-year or 40 year buildout growth boundaries identified for the Compact Development, Jobs Emphasis and PC Environmental Review plans, but is likely to take longer. Additional projects in the vicinity, such as the Westpark Project, would contribute to the cumulative alteration of the areas scenic qualities, and would contribute additional light and glare.

Cumulative Impacts

Impact 5.14-3 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with development in the region would result in the cumulative and permanent alteration of the area's scenic qualities during the next 40 years and would result in the cumulative increase in sources of light and glare. This impact is considered cumulatively considerable.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts will help mitigate regional impacts relating to scenic and aesthetic resources and light and glare. Applying these policies and implementation measures, such as the continued enforcement of the City's Community Design Guidelines will assist in reducing, but not fully mitigating these cumulative impacts. Therefore, this impact is considered **cumulatively considerable and significant and unavoidable**.

References

- California Energy Commission. 2005 Building Energy Efficiency Standards, Nonresidential Compliance Manual. Prepared by Architectural Energy Consultants. San Francisco, CA.
- City of Patterson, 1992 General Plan Policy Document and Land Use Diagram
- City of Patterson Community Design Guidelines and Downtown Physical Design Plan, October 2002
- City of Patterson West Patterson Business Park Master Development Plan, August, 2002
- City of Patterson Zoning Regulations (Title 18 of the Patterson Municipal Code)
- CMCA 2009 Draft Policy Document and Land Use Alternatives
- CMCA, 2007 General Plan Background Report

5.15 CULTURAL RESOURCES

Introduction

This section provides an analysis of potential impacts to historic and archaeological resources based on field investigations and a records search conducted by Far Western Anthropological Service and Stephen R. Wee, Architectural Historian. These studies are included as Appendix 5.15A Archaeological Resources Sensitivity and 5.25B Historic Architectural Resources, respectively.

Setting

The Study Area is situated mostly on dry, treeless alluvial fans that drain east to the San Joaquin River. The area west of Interstate 5 is located in treeless foothills that form the eastern edge of the Diablo Range, while a riverine strip along the western bank of the San Joaquin River forms its northeastern edge. The Sacramento-San Joaquin Delta is 20 miles to the north, but the gentle gradient of the bottomlands produces meandering river courses, cutoff oxbows, and localized marshes. The only other significant drainage is Del Puerto Creek, an intermittent stream that exits the Diablo Range and flows northeast to the San Joaquin. The 1947 Orestimba 15 minute quadrangle shows that Black Gulch, an even smaller intermittent creek, debouched on the fans west of Patterson, and did not flow as far east as the San Joaquin River. Salado Creek formerly flowed to the San Joaquin to the south of the Study Area; it was realigned to run north into the Study Area in historic times.

Landforms range from ancient pre-Quaternary and early Pleistocene hills and alluvial fans along the western boundary, to Middle and Late Holocene alluvial fans and terraces further east, to Latest Holocene terraces along the San Joaquin River and Del Puerto Creek. Soils are largely alluvial in origin, particularly east of Interstate 5. West of Interstate 5 is a mix of alluvial and colluvial soils. Most alluvial soils are derived from the Coast Range alluvial fans, while a strip up to a kilometer wide in the northeastern Study Area borders the San Joaquin River¹. More details about the distribution of landforms of different ages are found below in the discussion of Buried Archaeological Site Sensitivity. Some literature suggests that quartzite and chert toolstone sources were available as cobbles in the Pleistocene sediments along Black Gulch west of Interstate 5².

Regional climate is warm and dry, with annual precipitation averaging just over 11 inches, and more than 80% falling between November and March. Average maximum temperatures range from 55 degrees in January to 96 in July³. The dry climate supported extensive grasslands, with riverine corridors and gallery forests limited to the San Joaquin River bottomlands. Perennial purple needlegrass (*Nassella pulchra*) is thought to have been a dominant grassland species, along with nodding needlegrass (*Nassella cernua*), blue wild rye (*Elymus glaucus*), and pine bluegrass (*Poa secunda*; Burcham 1982:80).

While grasslands provided a variety of edible seeds and roots and some large game (notably antelope and to a lesser extent tule elk), they were far less productive areas for prehistoric inhabitants than riverine corridors and gallery forests. Riverine corridors were limited to the northeastern Study Area where it adjoins the San Joaquin River. The river provided resident fish like Sacramento sucker (*Catostomus occidentalis*), western pike-minnow (*Ptychocheilus grandis*), Sacramento perch (*Archoplites interruptus*), and tule perch (*Hysterocarpus traskii*). The San Joaquin may have supported runs of migratory Chinook salmon

¹ Meyer and Rosenthal 2007

² Thompson 1994

³ Western Regional Climate Center 2010

(*Oncorhynchus tshawytscha*), sturgeon (*Acipenser spp.*), and steelhead (*Oncorhynchus mykiss*). Del Puerto Creek, an intermittent drainage, would not have supported substantial fish populations.

The river and the lowest reaches of Del Puerto Creek were flanked by gallery forests (Burcham 1982; Küchler 1977). Gallery forests on natural levees and low terraces along these streams featured an overstory of cottonwood (*Populus fremontii*), valley oak (*Quercus lobata*), California sycamore (*Platanus racemosa*), Oregon ash (*Fraxinus latifolia*), and black walnut (*Juglans nigra*; Burcham 1982; Thompson 1980; West 1977). Oaks of the gallery forest would have provided acorns, the primary food staple of native peoples. Deer, the most important native game species, would have been most common in this zone.

Ethnography

At the time of European contact, almost the entire San Joaquin Valley, including the Study Area, was held by the Yokuts. According to Milliken (2006), the Study Area falls within the territory of the Lamam, a Northern Valley Yokuts group who lived along the San Joaquin River near Patterson. Milliken estimates a postcontact population density for the Lamam of 3.43 persons per square mile, near the average population estimates for the northern part of the valley.

Due to early missionization and extended Euro-American contact beginning during the Gold Rush, very little information was recorded about the Lamam and other Northern Valley Yokuts communities⁴. Like elsewhere in western California, the Yokuts were organized into small, independent political groups, referred to as tribelets. Each tribelet was controlled by a single headman and included a single principal settlement and occasionally smaller hamlets.

The Northern Valley Yokuts were among the first Central Valley native groups encountered by Spanish expeditions from the coast. As recorded in baptismal records, some Northern Valley Yokuts moved to the missions as early as 1809, and virtually all had moved to Mission San Jose by 1827⁵.

Early Explorations and Ranchos

Initial Mexican presence in the Study Area occurred in 1844 when the 13,340 acre Rancho del Puerto was granted to brothers Mariano and Pedro Hernandez. It encompassed lands between present-day Highway 33 to the west, the San Joaquin River to the east, Del Puerto Creek to the north, and Marshall Road to the south. During the Hernandez tenure, there was little more than a corral erected on the rancho, and vaqueros had only a horse or two to work the few head of cattle⁶. By the early 1850s, the Hernandez brothers sold the rancho to Americans Samuel G. Reed and Ruben S. Wade who were issued a patent in 1864⁷. After several quick sales, the rancho was purchased in 1866 by New Hampshire born stock raiser John D. Patterson⁸. With Patterson's purchase, Rancho del Puerto was developed from a sparsely grazed rangeland to a thriving agricultural enterprise.

Development of Agriculture (1866-1909)

J. D. Patterson, born in 1816, had secured an estimable reputation in the eastern states for his sheep and cattle lines. He shipped some of his best stock by steamship to San Francisco in the mid-1850s, wagering on burgeoning gold rush markets and accompanying high prices. Soon after his purchase, Patterson established a prosperous and diversified operation at Rancho del Puerto, devoting the bulk of the acreage to pasturing horses, sheep, and cattle, and also planting approximately 3,000 acres in wheat. The Rancho shipped goods from Patterson's San Joaquin River landing, located between current-day Las Palmas and

⁴ Wallace 1978

⁵ Eidsness and Milliken 2004

⁶ "The Gateway" 1978:3

⁷ Bean 1978:132-138; Perez 1996:84

⁸ "The Gateway" 2005:410

Eucalyptus avenues. Patterson expanded his holdings, purchasing approximately 5,000 additional acres to the west and south⁹, including lands previously homesteaded by prior immigrants to the region.

As the Southern Pacific Railroad laid its tracks down the east side of the Central Valley in the 1870s, isolated rural trading posts were transformed into bustling commercial centers serving as transportation hubs for export crops. In 1887, the Southern Pacific began construction of its secondary rail line down the west side of the valley extending from Tracy to Fresno¹⁰. New towns were established at Wesley and Newman, and in 1892 a siding was constructed on the Patterson Ranch. The rail stop provided a critical transportation outlet for the ranch's wheat crop, and a grain warehouse was constructed adjacent to the site. The development surrounding the new railway lines inspired the Patterson family to reassess the future course of their landholdings¹¹.

With Patterson's death in 1902, his estate was bequeathed to 11 heirs and remained in a family trust until May 13, 1908, when the family organized the Patterson Ranch Company. J. D.'s nephew, Fresno entrepreneur T. W. Patterson, quickly took controlling interest, ushering in a new era for the family's little developed agricultural holdings¹². The development of much of the San Joaquin Valley countryside was largely predicated upon the colony system. In contrast to unplanned rural settlements in other parts of the state, these agricultural colonies were developed and served by private water and land companies. Generally, up to 160 acres of land were dedicated for use as a town site while surrounding agricultural lands, all associated with irrigation ditches, were subdivided into ten-, 20-, and 40-acre lots. Lots were sold through land agents and advertising programs to floods of buyers who came from all over the United States and abroad¹³.

Town of Patterson (Est. 1910)

After establishing the Patterson Ranch Company, T. W. and his associates quickly turned to creating a town and divining a method of diverting water from the San Joaquin. The official map of the Patterson Colony was filed in the Stanislaus County Recorder's Office on December 13, 1910, employing an unusual radial plan where the town's major streets converged in a central plaza, a modest version of Pierre-Charles L'Enfant's 1791 plan of Washington, DC. Surrounding the town center, broad avenues extended to the fertile farmlands of the colony, connecting the agricultural lands with the town.

Establishing a viable irrigation system to support the colony was of primary importance. The Patterson Irrigation System serviced the 18,000-plus acres lying between the Patterson town site and the San Joaquin River. As of 1911, there were approximately 50 miles of main and lateral canals, and all were concrete-lined with modern concrete control structures. To further entice settlers, water rights were permanently attached to each parcel of land¹⁴.

With the dimensions of the town laid out and the pumping plants in effect, T. W. Patterson turned to the bricks and mortar which would do much to shape the early, and continuing, image of the town. In 1910, two Mission Revival-style buildings were erected—the Hotel Del Puerto in the southwest area of the central plaza (at the site of the current City Hall), and the Plaza Building which became the literal and figurative center of the new community¹⁵.

⁹ "The Gateway" 2005:411

¹⁰ Smith 1960:203-216

¹¹ Gooch 1988:62

¹² "The Gateway" 2005:418-420

¹³ Orsi 2005:112-123; Pisani 1984:119-128; Thickens 1946:17-39, 169-177

¹⁴ Roeding [USDA] 1911:42

¹⁵ Kimball 2003

In 1914, T. W. Patterson died at the age of 54 and his son Jack inherited the Patterson Ranch Company. As he was a minor at the time, his cousin John D. Patterson assumed responsibility for the company until the early 1920s, after which time Jack Patterson managed the agriculture-based company until its dissolution in 1948.

In 1919, city residents voted for incorporation, with a governing body of five council-men and a mayor elected every two years. That first year, sewers were installed throughout the downtown area. The transition to incorporation marked a shift for the town of Patterson as the family-run colony gave way to a twentieth-century community¹⁶.

The town's population had nearly quadrupled in size from 1911 to 1940, but still stood at only about 1,200 city residents. For a brief period between 1916 and 1920, Patterson housed a processing facility for the Mineral Products Company. The company constructed a 23-mile narrow gauge railroad from its facility at Sperry Avenue and South 4th Street to Del Puerto Canyon, supplying magnesite, manganese chrome, and quicksilver for the war effort. The mines played out early, however, and the processing plant and railroad were abandoned in 1920¹⁷.

Architectural and Other Important Local Historical Resources

In 1910, the Hotel Del Puerto was erected in the southwest area of the central plaza, at the site of the current City Hall. The Mission Revival building was designed to serve as a beckoning civic symbol for prospective settlers and investors. The same year, the company constructed the ranch company office, termed the Plaza Building, as it was constructed in the center of the town's plaza. The building was also erected in the Mission Revival Style, and became the literal and figurative center of the nascent community. Both the hotel and company headquarters were designed by Southern California architect Arthur B. Benton, a noted practitioner of California's noted Mission Revival Style¹⁸.

A number of agriculture-related industrial developments were also built to support the production of Patterson's surrounding farmsteads, including Patterson Grain Elevator in 1921 and the Mutual Creamery of Oakland in 1925. Irrigation continued to expand, with completion of the West Stanislaus Irrigation District in 1929. After the completion of Friant Dam on the upper San Joaquin in 1940, the quality of water diverted from the river to west-side irrigators declined.

The Farm Security Administration was created by President Franklin D. Roosevelt in 1937. Among their many programs, the Administration built and operated 28 migratory farm labor camps in California between 1937 and 1943, housing around 20,000 workers. The facility at Patterson included multi-family wood-frame units which, by the 1960s, were used by the Stanislaus County Housing Authority as public housing for farm workers.

The development of the downtown area of Patterson was inextricably linked to the agricultural development of the surrounding area. The town, with its radiating streets, small urban lots, and civic amenities, was designed to support the agricultural development of the surrounding area and the layout of the town itself was an inducement for agricultural settlers to purchase the newly irrigated land and "make permanent and attractive improvements." Emblematic of this link was T.W. Patterson's emphasis on vegetation and beautification that linked the more densely developed streets of the town's core with the agricultural acreage beyond. Patterson lined the easterly running avenues with diverse vegetation, including palms, eucalyptus, oleanders, and sycamores. These corridors linked the "city" with the 5, 10, and 20 acre plots beyond and created a cohesive design context that was then promoted to potential

¹⁶ Harrison 1977:18-20

¹⁷ Brotherton 1981:258

¹⁸ "National Register of Historic Places Registration Form: Plaza Building, 2003

settlers. The palms of Las Palmas Avenue are a vestige of this design, and remain a significant representative of Patterson's early development history¹⁹.

Throughout the late 1910s, 1920s and 1930s the physical development of the town continued at a modest pace. Although the design of the city had been laid out on an extensive scale by T. W. Patterson, its actual build-out was left to the discretion of hundreds of individual lot owners whose personal preferences in home styles reflected their economic status, cultural preferences and the architectural styles in vogue at the time they constructed their homes. Infill development, spanning several decades, lines many of the urban blocks in Patterson, and as late as the 1940s many vacant parcels remained, even in the Central Plaza. This somewhat haphazard development pattern has lent the City of Patterson a heterogeneous architectural identity in its historic-period neighborhoods, with buildings from the 1910s adjacent to those of the 1940s, 1950s and beyond. Several important construction efforts highlighted this period, including the construction of the Classical Revival Carnegie Library at 355 West Las Palmas Avenue in 1921. The library building remains as a National Landmark and is an important representative of the town's early civic development²⁰.

Modern Development (1950s-present)

Completion of the Central Valley Project and its Delta-Mendota Canal in the early 1950s, and the California Aqueduct a decade later, allowed for the continued expansion of diversified agricultural operations in the countryside surrounding Patterson. Although presently the development paradigm of small farmsteads has ceded to an increasingly large-scale agricultural pattern, farming remains at the forefront of Patterson's cultural identity and economy. In the 1970s, the town claimed the mantle of "Apricot Capital of the World," though currently its substantial agricultural base is dominated by almond and walnut orchards, as well as row crops including beans, tomatoes, broccoli, spinach, and melons²¹.

With the completion of Interstate 5 in the late 1960s, and the subsequent development of Interstate 580, waves of ex-urban settlers have flocked to the area, with the population more than doubling between 1998 and 2008; many new residents commute to the Bay Area. This population increase has infilled the town's core as well as expanded the community's borders, with several new housing developments, shopping malls, and business parks, pushing into former agricultural lands.

Despite the rapid growth of the past decade, the town of Patterson bears many of the distinctive attributes of its founding. The radial plan envisioned by the town's founder still remains the focal point of the town, as do some of its earliest buildings including the Ranch Company Office and the 1921 Carnegie Library. While the Del Puerto Hotel was destroyed by fire and demolished, its likeness is represented by the Patterson City Hall, built at the former hotel site on the Plaza. The palm tree-lined Las Palmas Avenue extends from this center to the San Joaquin River, crossing heavily cultivated fields and scattered farmsteads with residences, barns, and outbuildings from the earliest years of the town's development. Irrigation canals line the area, feeding these scattered farmsteads.

¹⁹ "Department of Parks and Recreation Historic Resources Inventory: Palm Tree Lined Area, Patterson, 1974

²⁰ "National Register of Historic Places Registration Form: Patterson Branch Library," 1990

²¹ Harrison 1977:18-20; The Gateway 1978

Regulatory Setting

State Regulations

California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both “historical resources” and “unique archaeological resources.” Pursuant to Public Resources Code Section 21084.1, a “project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” Section 21083.2 requires agencies to determine whether proposed projects would have effects on “unique archaeological resources.”

“Historical resource” is a term with a legally defined meaning (Public Resources Code, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a], [b]). As defined by state law, “historical resource” includes any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be “historical resources” for purposes of CEQA unless a preponderance of evidence indicates otherwise (Pub. Resources Code, Section 5024.1 and California Code of Regulations, Title 14, Section 4850).

Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR. In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process (Public Resources Code 5024.1 [g]), lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project’s impacts to historical resources (Public Resources Code, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a][3]). Following CEQA Guidelines Section 21084.5 (a) and (b) a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that:

- a. Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and
- b. Meets any of the following criteria:
 - a. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
 - b. Is associated with the lives of persons important in our past;
 - c. 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
 - d. Has yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources may also qualify as “historical resources” and Public Resources Code 5024 requires consultation with the Office of Historic Preservation when a project may impact historical resources located on State-owned land.

For historic structures, State CEQA Guidelines Section 15064.5, subdivision (b)(3), indicates that a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995) shall mitigate impacts to a level of less than significant. Potential eligibility also rests upon the integrity of the resource. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling, and association of the resource.

CEQA also requires lead agencies to consider whether projects will impact "unique archaeological resources." Public Resources Code Section 21083.2, subdivision (g), states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Treatment options under Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Advice on procedures to identify cultural resources, evaluate their importance and estimate potential effects is given in several official publications, such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states: In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

State CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult

with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the State CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5, subdivision (f), these provisions should include “an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place.”

Senate Bill 18 (Gov. Code, Sections 65352.3 and 65352.4) requires that, prior to the adoption or amendment of a general plan or specific plan proposed on or after March 1, 2005, a city or County must consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. The City of Patterson initiated the consultation process on December 9, 2009 as required under these provisions of the Government Code. As of January 26, 2010 one response was received from Debra Grimes representing the California Valley Miwok Tribe.

Paleontological resources are classified as non-renewable scientific resources and are protected by state statute (Public Resources Code Chapter 1.7, Section 5097.5, Archeological, Paleontological, and Historical Sites and Appendix G). No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction related earth moving on state or private land in a project site.

Standards of Significance

Following PRC Sections 21083.2 and 21084.1, and State CEQA Guidelines Section 15064.5 and Appendix G, cultural resource impacts are considered to be significant if implementation of the proposed project would result in any of the following:

1. Cause a substantial adverse change in the significance of an archaeological resource or a historical resource as defined in PRC section 21083.2 and CEQA Guidelines Section 15064.5, respectively;
2. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature; or
3. Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5 defines “substantial adverse change” as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

Project Impacts and Mitigation Measures

Methodology

A records search at the Central California Information Center at California State University, Stanislaus revealed that 47 cultural resources surveys have been conducted within the Study Area, and that 35 cultural resources have been recorded or informally noted.

The records search shows that most of the cultural resources surveys are inventories of linear corridors such as transmission lines, gas pipelines, or water conveyance facilities. In all, 63.4 miles of linear corridors have been surveyed through the Study Area. Many of the remaining cultural resources surveys were conducted for very small projects such as cell phone towers and apartment buildings. As the records search did not provide details on survey methods, we have assumed that 30-meter-wide corridors were surveyed for all linear projects. Assuming this corridor average, a total of approximately 2,902 acres has been surveyed, or about 18.2 percent of the Study Area.

Due to differences in survey methods spanning the different eras in which the surveys were conducted, there is some concern for comparability in study results. For example, historic-era resources were not always recorded in many studies conducted during earlier studies. Other surveys, particularly those dating prior to 1990, may not meet current standards for transect interval. Further, since the surveys were conducted on a project basis rather than a representative sampling design, they do not constitute a random sample that yields probabilities of finding various types of cultural resources in different zones²². The number of studies conducted, however, is sufficient to broadly generalize about the range of cultural resources that reasonably can be expected within the Study Area, and to begin to develop a provisional sensitivity model for their distribution.

This conclusion, however, follows only for resources visible on the surface; very few studies used subsurface testing or trenching to locate potential buried resources. Using the methods developed by Meyer and Rosenthal (2007), a predictive sensitivity model for buried cultural resources is presented, following a review of prior cultural resources findings and a provisional sensitivity model for cultural resources.

Disturbance of Cultural Resources

Impact 5.15-1 Development activities accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives could result in the potential disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This impact is considered potentially significant.

The records search reveals that five prehistoric archaeological resources, four historic-era archaeological resources, and 25 historic-era built resources (four with potential historic-era archaeological components) have been recorded or noted within the Study Area. Three prehistoric resources have been recorded within the Study Area, and two others have been noted but not recorded. Two of the recorded archaeological sites, P-50-000128 (CA-STA-42) and P-50-000256 (CA-STA-171), are not well documented. Site P-50-000128 is known only from a 1950 site record that indicates that the site was not visited but rather recorded on the report of a local landowner. It is described as an occupation site, which usually connotes a midden deposit and possibly human remains, upstream from the mouth of Del Puerto

²² cf. Thomas 1986

Canyon. Bell et al. (1993:7-8) surveyed the reputed location but could not locate it, and suggested it has been buried by alluvium or destroyed by erosion; also, the location could be inaccurate. Similarly, site P-50-000256 was not visited when it was recorded in 1971. This site is reported to have been at the location of the Patterson landfill, adjacent to the San Joaquin River, and to have contained human remains and prehistoric artifacts. The site is described as “apparently destroyed” by landfill activities.

The last recorded resource (P-50-000007) is an isolate chert flake found along the base of the Diablo Range near the mouth of Black Gulch Canyon. The two resources noted but not formally recorded include an isolated hopper mortar along Del Puerto Creek near the base of the Diablo Range (Flint 2000), and a quartzite lithic scatter upstream from the mouth of Black Gulch Canyon (Thompson 1994).

One additional prehistoric site is reported outside of but within one-quarter mile of the Study Area. This site, P-50-000207 (CA-STA-122), is located along the San Joaquin River and features human remains, midden deposit, and artifacts. None of the prehistoric resources located within the Study Area have been evaluated for eligibility to the California or National registers. If archaeological sites such as the occupation deposits with human remains retain sufficient integrity they are generally considered eligible under Criterion 4 (CEQA) or Criterion D (Section 106).

Table 5.15-1: Previously Discovered Cultural Resources Within the Study Area

Primary Reference Number	Trinomial Reference Number	Bridge Reference Number	Type Of Resource	Description
0007	--	--	Prehistoric Archaeological	Isolated flake
0128	42	--	Prehistoric Archaeological	Occupation site
0256	171	--	Prehistoric Archaeological	Occupational/burial site
--	Noted but not recorded	--	Prehistoric Archaeological	Isolated hopper mortar
--	Noted but not recorded	--	Prehistoric Archaeological	Lithic scatter
0300	217H	--	Historic Archaeological	Farm equipment
0370	425H	--	Historic Archaeological	Residence
1878	--	--	Historic Archaeological	Secondary refuse; ca 1910-1950s
1879	--	--	Historic Archaeological	Refuse scatter
1880	--	--	Built; Potential Historical Archaeological	Ranch complex
1881	--	--	Built; Potential Historical Archaeological	Residence; garage
1882	--	--	Built; Potential Historical Archaeological	Dairy barn and milk house
1964	--	--	Built; Potential Historical Archaeological	Residence and ranch
--	--	053	Built	Sperry Ave at California Aqueduct
--	--	102	Built	Orange Ave at Patterson Irrigation District
--	--	103	Built	Sperry Road at Delta Mendota Canal
--	--	104	Built	Sperry Road at Salado Creek
--	--	184	Built	Elm Ave at Patterson Irrigation District
--	--	185	Built	Sycamore Ave at Patterson Irrigation District
--	--	189	Built	Ward Ave at West Stanislaus Irrigation District
--	--	212	Built	Marshall Road at Delta Mendota Canal
--	--	213	Built	Ward Ave at Delta Mendota Canal
--	--	214	Built	Rogers Road at Delta Mendota Canal
--	--	215	Built	Rogers Road at Del Puerto Creek
--	--	216	Built	Olive Ave at Salado Creek
0001	350H	--	Built	Southern Pacific Railroad segment
1718	--	--	Built	Palm tree lined area
1722	--	--	Built	Hotel Del Puerto
1723	--	--	Built	Plaza Building
1724	--	020	Built	State Route 33 at Salado Creek
1903	--	--	Built	California Aqueduct
1904	--	--	Built	Delta Mendota Canal
1924	--	--	Built	Patterson Irrigation District Canal
1965	--	--	Built	Del Puerto Fire Station
0540	--	--	Built	Patterson Branch Library

Source: Central California Information Center, California Historical Information System, Department of Anthropology – California State University Stanislaus

Draft General Plan Policy Response

The draft General Plan includes several policies that directly address the management of development to minimize the impact of future development on cultural resources the following:

Policies

- PR-5.1 Review of development.** The City shall refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory, Central California Information Center, at Stanislaus State University, for review and comment.
- PR-5.2 Native American consultation requirements.** The City shall continue to comply with the requirements Government Code Sections 65352.3 and 65352.4 which require the City to consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects.
- PR-5.3 Mandatory avoidance of impacts.** The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting with applicable State and local agencies and organizations, conducting a site evaluation as may be indicated, and mitigating any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the State CEQA Guidelines.
- PR-5.4 Protection of Native American cultural sites.** The City shall ensure the protection of archaeological sites that may be culturally significant to Native Americans, even if they have lost their scientific or archaeological integrity through previous disturbance; sites that may have religious value, even though no artifacts are present; and sites that contain artifacts which may have intrinsic value, even though their archaeological context has been disturbed.
- PR-6.1 Protection of archaeological resources.** The City shall provide for the protection of both known and potential archaeological resources. To avoid significant damage to important archaeological sites, all available measures, including purchase of the property in fee or easement, shall be explored at the time of a development proposal. Where such measures are not feasible and development would adversely affect identified archaeological or paleontological resources, mitigation shall be required in accordance with the relevant provisions of federal and State laws.
- PR-6.2 Archaeologically sensitive areas.** Development within an archaeologically sensitive area shall require a preliminary site survey by a qualified archaeologist knowledgeable in Native American cultures, prior to a determination of the potential environmental impacts of the project.
- PR-6.3 Archaeological resources present.** Where a preliminary site survey finds substantial archaeological resources, before permitting construction, the City shall require a mitigation plan to protect the resources. Possible mitigation measures include:

- Requiring the presence of a qualified professional during initial grading or trenching; project redesign;
- Covering with a layer of fill; excavation, removal and curation in an appropriate facility under the direction of a qualified professional.

PR-6.4 Qualified archaeologist present. Where substantial archaeological resources are discovered during construction or grading activities, all such activities in the immediate area of the find shall cease until a qualified archaeologist knowledgeable in Native American cultures can determine the significance of the resource and recommend alternative mitigation measures.

PR-6.5 Archaeological site records. The City shall establish and maintain archaeological site records about known sites. Specific archaeological site information shall be kept confidential to protect the resources. The City shall maintain, for public use, generalized maps showing known areas of archaeological sensitivity.

Implementation Measures

PR-8 The City shall impose the following conditions on all discretionary projects which may cause ground disturbance:

“The Planning Department shall be notified immediately if any prehistoric, archaeological, or fossil artifact or resource is uncovered during construction. All construction must stop and an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action.”

“All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California’s Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.”

The policies and implementation measures listed above apply to each Equal-Weight alternative and will reduce potential impacts to archaeological and historical resources to a less than significant level. Therefore, this impact is considered **less than significant**.

Additional Mitigation

None required.

Disturbance of Historic Sites and Structures

Impact 5.15-2 Development activities accommodated by buildout of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives could result in the potential disturbance of existing historic sites and structures. This impact is considered potentially significant.

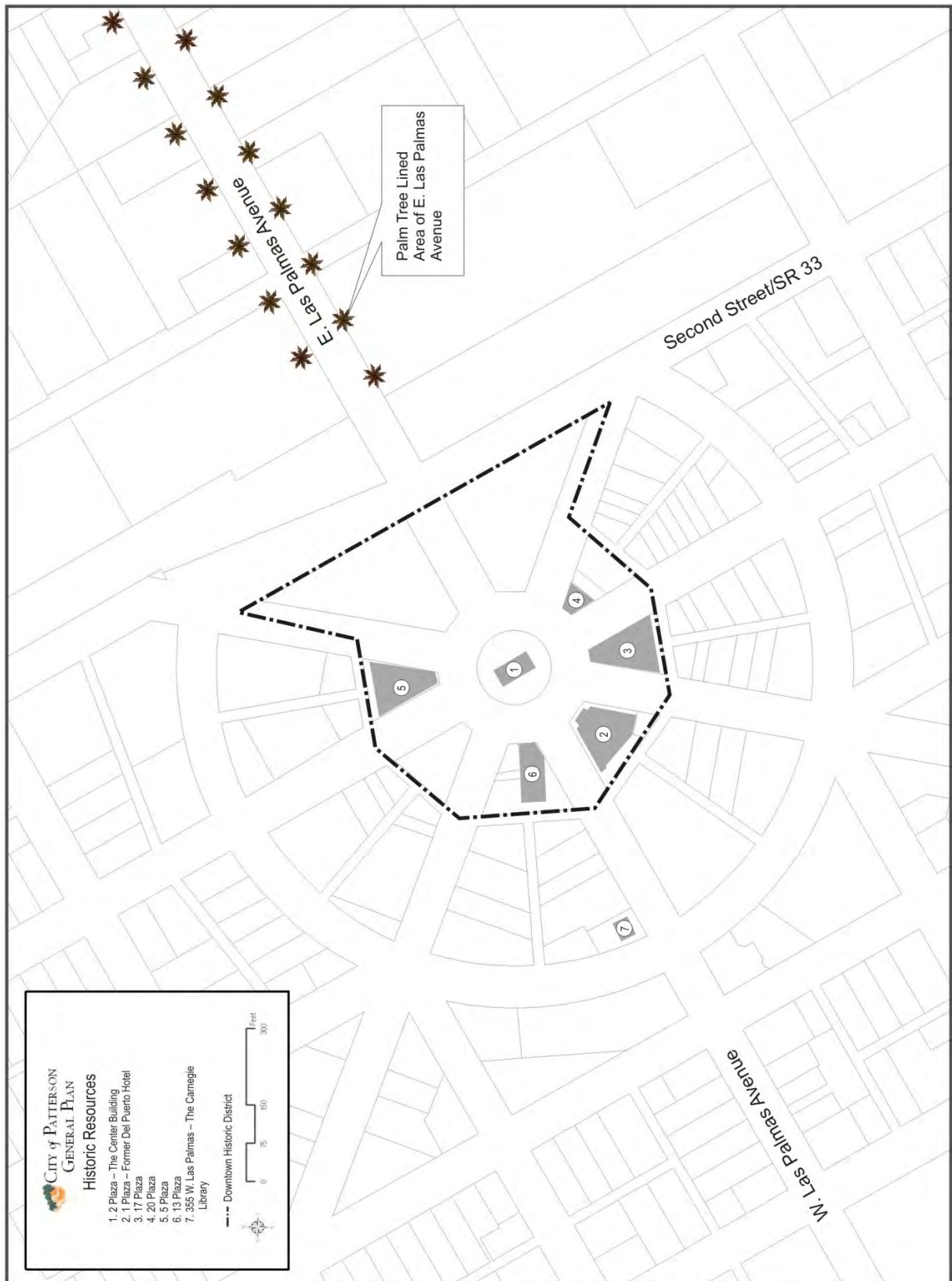
A records search at the Central California Information Center at CSU Stanislaus revealed that three National Register and California Register eligible historic resources have been identified within the Study Area; two are listed in the National Register and California Register and one has been determined eligible for listing in the National Register and is listed in the California Register. In addition, the records search identified one historic-era resource in the Study Area that has been identified in a reconnaissance level survey and as such requires evaluation. The results of this record search are summarized on the following page in Table 5.15-2.

Table 5.15-2: Identified Historic Resources in Patterson General Plan Study Area

Name	Address	Year Built	OHP Status Code ¹	Notes
Carnegie Library a.k.a. Patterson Branch Library	355 W. Las Palmas Ave.	1917	1S	Listed in the National Register of Historic Places and California Register of Historical Resources.
Center Building a.k.a. Plaza Building and Patterson Ranch Company Office	2 Plaza	1909	1S	Listed in the National Register of Historic Places and California Register of Historical Resources.
Delta-Mendota Canal		1951	2S2	Located southwest of Rogers and Zacharias Roads, component of Central Valley Project.
Palm tree-lined area of Las Palmas Avenue	E. Las Palmas Ave.	Ca. 1913	7R	Extends from the Plaza to the San Joaquin River.
Notes:				
1. Office of Historic Preservation status codes may be found in Appendix B of <i>Patterson General Plan Update, Historic Architectural Resources Study</i> , Stephen R. Wee, Architectural Historian, January 2010. The full report is provided as Appendix 5.15 of this EIR.				
Source: Patterson General Plan Update, Historic Architectural Resources Study, Stephen R. Wee, Architectural Historian, January 2010				

Research also revealed several resources identified by the City of Patterson as locally significant. This includes the Patterson Historic Overlay Zone, which is identified in Municipal Ordinance Chapter 18.70 and includes the area immediately adjacent to the Plaza: 1 Plaza; 2 Plaza (Center Building); 5 Plaza; 13 Plaza; 17 Plaza; 20 Plaza; North Park; South Park; and 355 W. Las Palmas Ave (Carnegie Library). In addition, City of Patterson Community Design Guidelines identify the historic palms of Las Palmas Avenue in Chapter 6 (Special Design Considerations). While the palms have not yet been identified or designated as a locally significant resource at the time of this writing, the palms require further local consideration.

Figure 5.15-1 Historic Resources and Downtown Historic District



Four of these sites represent agricultural enterprises. Site P-50-370 records the residence and small farm belonging first to Emanuel Rogers—who arrived in California in 1879 from the Azores—and later to his nephew M. Lasido. Located west of Interstate 5 along the banks of Del Puerto Creek, it appears on the 1870 General Land Office map (5S7E) and was likely one of the early homesteads in this area. By the 1980s, all the buildings on the site were gone.

Two other sites (P-50-1880 and -1882) represent locations of dairy barns and milk houses, both with standing structures at the time of their recording. They are elements of agricultural feature systems and their locations and attributes may provide information on the important local dairy industry which developed in the early twentieth century. The standing buildings have been evaluated for their architectural significance and found to be not eligible to the California Register (Tomes 2002; Marvin 2006).

Site P-50-0300 documents farm equipment dating from as early as the 1890s to about 1925, including two seven-gang plows and what appear to be the remains of two header carts. As mobile objects, they would not be eligible to the California Register.

Two sites (P-50-1881 and -1964) record residences constructed near the center of Patterson, one in 1922 and the other in the 1930s. Recorded as part of an architectural inventory of Patterson, they are unlikely to contain archaeological deposits of interest to the town's history.

Two sites record refuse deposits near the banks of the San Joaquin River (P-50-1978 and -1979). The artifacts are interpreted as part of town dumping that took place between 1910 and the 1950s. The lack of association for these remains (by household or time period) decreases their potential significance. Several other site types are known to be present in the Study Area from historic documents, although they have not been formally recorded. Among these are the 1870s Patterson Landing on the San Joaquin River (between current Las Palmas and Eucalyptus avenues), early homesteads recorded in claims, gravel mining sites, and a "Farm Labor Center" depicted on the northwest corner of town on an 1953 USGS topographic map.

None of the Equal-Weight Alternatives will have a direct adverse impact on the historic resources identified above. However, future development and redevelopment of properties accommodated by all three alternatives in either the 20-year growth boundary or the 40 year buildout growth boundary could adversely impact existing historic resources. These activities would be subject to project-specific environmental review.

Draft General Plan Policy Response

PR-4.1 Protection of significant structures. The City shall set as a high priority the protection and enhancement of Patterson's historically and architecturally significant buildings.

PR-4.2 Historic district. The City shall maintain a historic district in the downtown area and along East Las Palmas Avenue and develop standards for the preservation and rehabilitation of historic structures and compatible infill development. New development near designated historic landmark structures and sites shall be designed to be compatible with the character of the designated historic resource.

- PR-4.3 Registration of historic structures.** The City shall work with property owners in seeking registration of historical structures and sites as State Historic Landmarks or listing on the National Register of Historic Sites.
- PR-4.4 Support for private historic preservation.** The City 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.
- PR-4.5 Demolition.** The City shall consider demolition of historic resources as a last resort, to be permitted only if the following findings are made: rehabilitation and/or relocation are not feasible; the demolition of the resource is necessary to protect the health and safety of the public; or the public benefits of demolition outweigh the cost of preserving the resource. In all instances, the City shall gather and report input from the public prior to preparing a recommendation (for or against demolition) to decision-makers.
- PR-4.6 Agricultural heritage museum.** The City shall explore the possibility of establishing a living history center or museum to focus on Patterson's agricultural heritage.
- PR-4.7 Patterson Historical Society.** The City shall support the efforts of the Patterson Township Historical Society to keep the Center Building Historical Museum open and accessible to the public.

The policies listed above apply to each Equal-Weight alternative and will reduce potential impacts to historical resources to a less than significant level. Therefore, this impact is considered **less than significant**.

Additional Mitigation

None required.

Disturbance of Paleontological Resources

Impact 5.15-3 Implementation of any of the Equal-Weight Alternatives could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations). However, policy provisions of the proposed General Plan Update would mitigate potential impacts to these resources. This would be a less than significant impact.

A search of the University of California, Berkeley Museum of Paleontology collections database did not identify any paleontological resources within the boundaries of the City of Patterson and the Study Area. The sensitivity of the area for paleontological resources, however, has not been assessed and no formal paleontological investigations were identified for the area. Consequently, implementation of the proposed project could impact undiscovered paleontological resources.

Implementation Measures

PR-8 The City shall impose the following conditions on all discretionary projects which may cause ground disturbance:

“The Planning Department shall be notified immediately if any prehistoric, archaeologic, or fossil artifact or resource is uncovered during construction. All construction must stop and an archaeologist that meets the Secretary of the Interior’s Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action.”

“All construction must stop if any human remains are uncovered, and the County Coroner must be notified according to Section 7050.5 of California’s Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.”

The implementation measure listed above applies to each Equal-Weight alternative and will reduce potential impacts to paleontological resources to a less than significant level. Therefore, this impact is considered less than significant.

Additional Mitigation

None required.

Cumulative Impacts and Mitigation Measures

Cumulative Setting

The cumulative setting includes proposed, planned, reasonably foreseeable, and approved projects within the region (see Section 4.0), as well as full buildout of the City of Patterson in accordance with each of the Equal-Weight Alternatives. Regional growth and development would contribute to potential conflicts with cultural, historical and paleontological resources. These resources include archaeological resources associated with Native American activities and historic resources associated settlement, farming, and economic development.

Cumulative Impacts

Disturbance of Cultural Resources

Impact 5.15-4 Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives along with foreseeable development in the region could contribute to further disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains. This impact is considered less than cumulatively considerable.

Continued urban development in the region accommodated by the County and the General Plans of other jurisdictions could result in the disturbance of cultural resources. However, policies recommended

by the draft Policy Document would mitigate the contribution of any of the Equal-Weight Alternatives to potential impacts to these resources. This impact is considered less than cumulatively considerable.

Draft General Plan Policy Response

The draft policies listed above for Project Impacts will mitigate regional impacts relating to cultural, paleontological and historical resources. Therefore, cumulative impacts to these resources are considered less than cumulatively considerable.

Additional Mitigation

None required.

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6.0 CUMULATIVE IMPACTS

This section summarizes the cumulative impacts associated with the implementation of the three Equal-Weight Alternatives over the next 20 to 40 year buildout timeframes. Cumulative impacts are the result of combining the potential effects of the project (in this case, each of the Equal-Weight Alternatives) with other planned and foreseeable development projects.

Introduction

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to State CEQA Guidelines Section 15130(a), “an EIR shall discuss cumulative impacts of a project when the project’s incremental effect is cumulatively considerable.” “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (as defined by Section 15130).

As defined in State CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from:

...the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

In addition, Section 15130(b) sets forth the following elements for an adequate cumulative analysis:

1. Either:
 - a. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or,
 - b. A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.
2. A definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used;
3. A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and

4. A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

Where a lead agency is examining a project with an incremental effect that is not “...cumulatively considerable...,” a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

Cumulative impacts associated with each of the Equal-Weight Alternatives are discussed in each of the topical sections of this EIR along with the geographic scope of the analysis. This EIR employs both the “list of past, present, and probable future projects” approach as well as the “summary of projections” approach as summarized in Table 6.0-1.

Table 6.0-1 Approach To Cumulative Impact Assessment		
Impact Section	Approach Used to Assess Cumulative Impacts	Geographic Scope of Analysis
5.1 Land Use	List and Summary of Projections	Western Stanislaus County
5.2 Population Housing and Employment	List and Summary of Projections	Western Stanislaus County
5.3 Public Services	List and Summary of Projections	Stanislaus County
5.4 Water Supply	List and Summary of Projections	General Plan Study Area and water service area
5.5 Wastewater	List and Summary of Projections	General Plan Study Area
5.6 Transportation	List and Summary of Projections	Western Stanislaus County
5.7 Air Quality and Climate Change	List and Summary of Projections	Western Stanislaus County
5.8 Noise	List and Summary of Projections	General Plan Study Area
5.9 Geology and Soils	List	General Plan Study Area and wastewater treatment plant area
5.10 Biological Resources	List and Summary of Projections	General Plan Study Area and wastewater treatment plant area
5.11 Agricultural Resources	List and Summary of Projections	General Plan Study Area and wastewater treatment plant area
5.12 Hazards and Hazardous Materials	List and Summary of Projections	General Plan Study Area
5.13 Hydrology and Water Quality	List and Summary of Projections	General Plan Study Area and wastewater treatment plant area
5.14 Visual Resources	List and Summary of Projections	General Plan Study Area
5.15 Cultural Resources	List and Summary of Projections	General Plan Study Area and wastewater treatment plant area

Cumulative Setting

A general description of the cumulative setting is provided in Section 4.0 (Introduction to the Impact Analysis). In addition, each environmental issue area evaluated in the Draft EIR identifies its own cumulative setting and cumulative impact analysis (see Sections 5.1 through 5.15).

Cumulative Impacts Analysis

What follows is a summary of the cumulative impacts from Sections 5.1 through 5.15 that would result from implementation of the Equal-Weight Alternatives and future development in the vicinity. The reader is referred to Sections 5.1 through 5.15 for a further discussion of these cumulative impacts.

Section 5.1 -- Land Use

Impacts 5.1-4: Consistency with the Stanislaus Local Agency Formation Commission.

Each of the Equal-Weight Alternatives designates land around the existing urban area for additional urban development, as summarized in Table 8.0-2. The land use patterns reflected in each alternative exhibit a different degree of consistency with the purpose and intent of the policies of the Local Agency Formation Commission. For example, the Compact Development alternative is more consistent with policies that favor the protection of prime agricultural land and open space than either the Jobs Emphasis or the Planning Commission Environmental Review alternatives because it accomplishes most of the basic objectives set forth by the community for the General Plan, as described in Section 3—Description of Equal-Weight Project Alternatives, but would result in the least conversion of productive agricultural land and open space. The Jobs Emphasis Alternative, however, may be more consistent with policies that favor harmony between housing for residents and jobs provided by commercial and industrial development.

The draft Policy Document establishes a development strategy for the City aimed at promoting the policies described above through the application of “Smart Growth” principles and the management of urban development. Expansion of the City’s adopted sphere of influence and the annexation of lands in accordance with any of the Equal-Weight Alternatives will be pursued consistent with the aforementioned policies. Nonetheless, cumulative impacts are considered **cumulatively considerable and significant and unavoidable**.

Impacts 5.1-5: Consistency with the Stanislaus County General Plan.

The Stanislaus County General Plan governs land use outside the City limits within the Study Area. The applicable land use designations are shown on Figure 5.1-6. The majority of lands surrounding the City are designated *Agriculture* which establishes agriculture as the primary use, but allows dwelling units, limited agriculturally-related commercial services, agriculturally-related light industrial uses, and other uses which by their unique nature are not compatible with urban uses. Land within the City’s currently adopted sphere of influence is designated as *Urban Transition*. Policies of the County General Plan require development within a City’s sphere of influence to be consistent with the City’s general plan.

Each Equal-Weight alternative designates land surrounding the City with designations that would allow the urban development that is not allowable under the County's *Agriculture* designation. For each alternative, the Policy Document provides policies that require inclusion of expansion areas within the City's sphere of influence and annexation prior to urban development. Amendment of the City's sphere of influence and annexation require the approval of the Local Agency Formation Commission and cannot be guaranteed by the City. Prior to annexation, the land use designations of any of the Equal-Weight alternatives would remain inconsistent with those of the County general plan. Inconsistency with the County General Plan is considered and **cumulatively considerable and significant and unavoidable**.

Section 5.2 -- Population, Housing and Employment

Impacts 5.2-3: Conflicts with projections used by the Stanislaus Council of Governments.

Buildout of any of the Equal-Weight Alternatives will increase housing and employment beyond the projections identified for year 2030 by the Stanislaus Council of Governments.

If each Equal-Weight Alternative is developed within the 20-year and 40 year (buildout) timeframes there will be a higher number of jobs than dwelling units in the region which in turn could increase the demand for housing locally. Although none of the Equal-Weight Alternatives are expected to reach their full development potential by 2030, the projected population and employment accommodated by each alternative will contribute to a population and employment increase in the region that is **cumulatively considerable and significant and unavoidable**.

Section 5.3 -- Public Services

Impact 5.3-1: Cumulative impacts to fire protection and emergency services.

Each of the Equal-Weight Alternatives would require additional fire-protection services and equipment to adequately serve new development. In addition, expansion of the urban area proposed under each alternative will increase response times for fire and emergency services unless additional fire stations are built and staffed. Policies and implementation measures recommended by the Draft Policy Document for impact 5.3-1 that apply to each Equal-Weight Alternative require new development to provide adequate fire and emergency services concurrently or in advance of such development. As the geographic area and population served by the Fire Department expands, the desired response times may not be achieved without additional fire stations and fire fighting personnel, construction of which could cause impacts that are not currently known. Therefore, cumulative police protection impacts of the Equal-Weight Alternatives are considered **cumulatively considerable, and significant and unavoidable**.

Impact 5.3-2: Cumulative impacts relating to law enforcement.

Each of the Equal-Weight Alternatives would result in an expansion of the City's existing population and land area within the 20 and 40 year (buildout) growth boundaries, thereby increasing the need for police officers and increasing response times unless additional stations are built. Accordingly, any of the Equal-Weight Alternatives would require additional law enforcement services and equipment to adequately serve potential populations accommodated in the 20-year and 40 year (buildout) growth boundaries. As the geographic area and population served by the Police Department expands, the desired response times may not be achieved without additional police stations (or substations) and law enforcement personnel, construction of which could cause impacts that are not currently known. Therefore, cumulative police protection impacts of the Equal-Weight Alternatives are considered **cumulatively considerable, and significant and unavoidable**.

Impact 5.3-3: Cumulative impacts relating to parks.

Each of the Equal-Weight Alternatives will accommodate a significant increase in population with a corresponding increased demand for parks and recreation facilities. The 1992 General Plan and the draft Policy Document establish a goal of 5 acres of developed parkland per 1,000 residents. Policies of the Draft Policy Document require new development to dedicate its fair share of parkland and/or pay an in lieu fee. This requirement is reflected in the development standards embodied in policies LU-1.3 and LU-1.4 for areas designated Neighborhood Village and Mixed-Use Hillside Development, respectively. For all large-scale annexation areas, development plans must incorporate parkland to achieve a ratio of 5 acres per 1,000 residents. Implementation of this policy, along with the other policies and implementation measures discussed under Impact 5.3-3 ensure that sufficient parkland to achieve and maintain the desired ratio is provided by new development. For these reasons, impacts associated with the Equal-Weight Alternatives relating to parks and recreation facilities are considered **less than cumulatively significant**.

Impact 5.3-4: Project and cumulative impacts relating to school facilities.

The City and Study Area lie entirely within the boundaries of the Patterson Joint Unified School District (PJUSD). Each of the Equal-Weight Alternatives would accommodate an increased population which would in turn result in additional school-aged children and a corresponding demand for school facilities. The Draft Policy Document recommends policies and implementation measures which would help minimize impacts related to school facilities (see policies listed under Impact 5.3-4). In addition, the payment of statutory fees is considered to provide full and complete school facility mitigation. Therefore, by continuing to require the payment of statutory fees, school impacts would be considered **less than cumulatively considerable**.

Impact 5.3-5: Cumulative impacts relating to health care.

The Del Puerto Health Care District (DPHCD) provides emergency ambulance service, urgent/primary care to west Stanislaus County, as well as community education and outreach services, CPR and first aid classes, and paramedic training. The demand for health care services would increase as development occurs in the Study Area over the next 40 years under any of the alternatives including the No project Alternative. The Draft Policy Document recommends policies and implementation measures discussed under Impact 5.3-5 to reduce the potential impacts relating to health care services to a less than significant level. However, the size, number and location of additional health care facilities that may be needed to serve the expanded service populations as well as regional growth are unknown in 2010. Accordingly, the physical impacts associated with the construction of these facilities are considered **cumulatively considerable and significant and unavoidable**.

Impact 5.3-6: Cumulative impacts relating to solid waste disposal.

Implementation of any of the Equal-Weight Alternatives would result in a substantial increase in solid waste generation within the City and the General Plan Study Area over the 20 year and 40 year (buildout) timeframes which in turn will adversely impact the capacity of landfills serving the City. Assuming the same per capita rate of solid waste generation experienced in 2007 for the future population of the City under the largest alternative (i.e., the Planning Commission Environmental Review Plan), the total additional solid waste disposed of in the Fink Road Landfill between 2007 and 2030 would be about 4 million tons, which is less than the remaining estimated capacity of 6 million tons. Thus, the Fink Road Landfill appears to have adequate capacity to accommodate Patterson's contribution from each of the Equal-Weight Alternatives. The Draft Policy Document recommends policies and implementation measures discussed under Impact 5.3-6 that will help reduce project impacts relating to solid waste to a less than significant level. However, when regional growth is considered, the capacity of the landfill would be reached by 2039. As a result, cumulative solid waste disposal impacts are considered **cumulatively considerable and significant and unavoidable** for each Equal-Weight Alternative.

Section 5.4 -- Water Supply

Impact 5.4-5: Cumulative reduction of water available for agricultural operations.

Implementation of the water supply program recommended under impact 5.4-1 would result in the use of irrigation water for urban uses that includes landscape irrigation and/or groundwater recharge. The potential amount of irrigation water diverted from agricultural use to urban is shown on table 8.0-15. Implementation of any of the Equal-Weight Alternatives will result in a net decrease in the amount of irrigation water available for agricultural uses delivered by the Central Valley Project via the Patterson Irrigation District, the West Stanislaus Irrigation District and the Del Puerto Water District. This impact is considered **cumulatively considerable and significant and unavoidable**.

Impact 5.4-6: Future water demand will exceed available supplies to the City.

The cumulative condition for water supply analysis is coterminous with the analysis of the General Plan demand. The City of Patterson has historically satisfied all of its demand for water from the underlying groundwater basin. The City operates nine (9) wells with a total capacity of 9,600 gallons per minute, with a projected production of about 7,500 AFY. The wells currently (2010) produce a combined 5,000 AFY¹. However, the local groundwater basin has production limitations, and for purposes of water supply planning it is estimated that an average of 8,300 acre feet/year of groundwater is available for City use² which (according to the City's 2006 Urban Water Management Plan) is sufficient to serve a population of about 35,000 residents. Accordingly, water demand associated with a population greater than 35,000 will require a secondary source of water.

Policies and implementation measures recommended under impact 5.4-1 set forth a program for ensuring a reliable secondary source of water is available to serve development beyond 35,000 residents. However, there are several uncertainties and associated adverse environmental impacts associated with this program and for these reasons, project and cumulative impacts associated with all three Equal Weight Alternatives are considered **cumulatively considerable and significant and unavoidable** for both the 20-year and 40 year (buildout) timeframes.

Section 5.5 -- Wastewater

Impact 5.5-4 Cumulative demand for wastewater service.

As discussed in section 5.5-Wastewater, an expansion of the treatment capacity of the wastewater treatment plant will be needed to accommodate flows associated with each of the Equal-Weight Alternatives. The projection of future flows associated with each Equal-Weight Alternative includes the cumulative flows for the 20-year and 40 year (buildout) timeframes, in addition to wastewater flows expected from the Diablo Grande Project which will be treated by the City. As discussed under impact 5.5-1, project and cumulative impacts relating to wastewater collection, treatment and disposal are considered **less than cumulatively considerable**.

¹ The H2O Group 2010, page 3-6.

² Net long-term use of 8,300 ac-ft/yr based on current use, development of groundwater pumping facilities, and previous groundwater studies. Groundwater use may vary year-to-year based on water year type, surface water availability, etc.

5.6 -- Transportation

Impact 5.6-16 Cumulative increase in traffic on city roadways through the year 2050.

The analysis of traffic related impacts discussed under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6 includes the cumulative growth in background traffic, plus traffic associated with each of the Equal-Weight Alternatives, plus traffic associated with the Westpark project. Accordingly, the analysis is cumulative through the year 2050. Although the Circulation Diagram, draft Policy Document and recommended mitigation measures, when implemented, will reduce potential traffic-related impacts and achieve the County's adopted level of service, implementation of the recommended improvements is outside of the control of the City of Patterson. Therefore these improvements cannot be guaranteed and potential impacts to roadways and intersections under the County's jurisdiction will remain **cumulatively considerable and significant and unavoidable**.

Impact 5.6-17 Cumulative increase in traffic in adjacent jurisdictions.

As discussed under impact 5.6-8, development accommodated by each of the Equal-Weight Alternatives will result in adverse impacts to streets and intersections under the jurisdiction of Stanislaus County. Although the Circulation Diagram, draft Policy Document and recommended mitigation measures, when implemented, will reduce potential traffic-related impacts and achieve the County's adopted level of service, implementation of the recommended improvements is outside of the control of the City of Patterson. Therefore these improvements cannot be guaranteed and potential impacts to roadways and intersections under the County's jurisdiction will remain **cumulatively considerable and significant and unavoidable**.

Impact 5.6-18 Cumulative increase in traffic on Interstate 5 through 2050.

As discussed under impact 5.6-9, development accommodated by each of the Equal-Weight Alternatives will result in adverse impacts to Interstate 5 to the north and south of the City. As with roadways and intersections under the jurisdiction of the County, implementation of the recommended improvements is outside of the control of the City of Patterson. Therefore these improvements cannot be guaranteed and potential impacts to Interstate 5 will remain **cumulatively considerable and significant and unavoidable**.

Impact 5.6-19 Cumulative conditions could adversely affect transit facilities through 2050.

As discussed under impact 5.6-10 urban development accommodated by each of the Equal-Weight Alternatives will result in a significant increase in the City's population, which taken together with the expected growth in regional population, employment and shopping, will result in a region-wide increase in the demand for transit service. While the policies and implementation measures recommended by the draft Policy Document and as described under

impact 5.6-10 would reduce potential impacts, because the City is not in control of approval and funding of all changes, the impacts will remain **cumulatively considerable and significant and unavoidable**.

5.7 -- Air Quality and Climate Change

Impact 5.7-6: Cumulative impacts relating to climate change – greenhouse gas emissions.

Development accommodated by the Equal-Weight Alternatives within both the 20-year and 40 year (buildout) growth boundaries would result in an increase in population, motor vehicle traffic, fuel use and other activities that generate greenhouse gas (GHG) emissions. The draft Policy Document recommends a range of policies and implementation measures discussed under impact 5.7-6 which will help minimize the increase in GHG emissions associated with the Equal-Weight Alternatives. However, the discussion under impact 5.7-6 suggests that buildout in accordance with each of the Equal-Weight Alternatives will result in a significant net increase in the emission of greenhouse gases above 2010 levels and above target levels established by State law for 2020 in accordance with SB32. As a result, this impact is considered **cumulatively considerable and significant and unavoidable** for each Equal-Weight Alternative for both the 20-year and 40 year (buildout) growth boundaries.

Impact 5.7-7 Additional risk of physical harm related to flooding, public health, wildfire risk and other impacts resulting from climate change.

Existing and new development and the natural environment in Patterson will be subject to climate change impacts resulting from past, present, and future GHG emissions, regardless of the success of local, State, national, or international efforts in reducing future GHG emissions. Due to the existing concentrations of GHG emissions in the atmosphere and the inevitable additional emissions before GHG reductions plans provide reductions, a known amount of warming in the lower atmosphere and consequent changes in historical climate patterns will inevitably occur.

Changes to the City's agriculture, water supplies, flooding, wildfire potential, environmental health, air quality and other areas are reasonably foreseeable, although not quantifiable in some aspects at present. New development allowed by General Plan 2030 could place persons and property at higher levels of risk to climate change effects if it does not anticipate reasonably foreseeable changes in environmental conditions. Without further planning, current requirements may provide inadequate protection against adverse physical impacts and may not anticipate changed conditions resulting from climate change. When considered in the context of long-term physical changes to the environment, the potential cumulative impacts associated with climate change are considered **cumulatively considerable and significant and unavoidable**.

Impact 5.7-8 Conflicts with ozone and particulate matter attainment efforts.

As discussed under impact 5.7-4, the populations accommodated by each of the Equal-Weight Alternatives for both the 20-year and 40 year (buildout) growth boundaries will exceed the population projections used by the SJVUAPCD to prepare the 2007 Extreme Ozone Attainment Demonstration Plan. Emissions resulting from mobile and stationary sources associated with each Equal-Weight Alternative. The development and resulting populations were not anticipated by the 2007 Extreme Ozone Attainment Demonstration Plan. Accordingly, these emissions, together with emissions associated with regional development, will hinder efforts to achieve and maintain federal and State air quality standards. This impact is considered **cumulatively considerable and significant and unavoidable**.

Section 5.8 – Noise**Impact 5.8-7 Increased noise conflicts.**

The projection of future noise within the 20-year and 40 year (buildout) growth boundaries includes noise associated with the contribution from motor vehicles, rail and aircraft sources associated with regional development. Accordingly, the analysis of noise provided in impacts 5.8-2, 5.8-3, 5.8-4 and 5.8-5 provides a cumulative analysis in that it includes the growth in background noise and noise associated with cumulative development. Buildout of the Study Area in accordance with any of the Equal-Weight Alternatives would result in additional traffic along area roadways and result in increased noise. In addition, buildout could result in additional stationary noise conflicts beyond anticipated development by the 20-year and 40 year (buildout) timeframes. The cumulative impact of the growth in background noise, together with noise associated with regional development, is considered **cumulatively considerable**.

The draft policies listed for impacts 5.8-2, 5.8-3, 5.8-4 and 5.8-5 will help mitigate regional impacts relating to noise from transportation and stationary sources. However, cumulative impacts will remain **cumulatively considerable and significant and unavoidable**.

Section 5.9 -- Geology and Soils**Impact 5.9-6 Cumulative seismic hazards, expansive soils, and soil erosion impacts.**

Development of the Study Area under any of the Equal-Weight General Plan alternatives together with continued development within Stanislaus County would result in cumulative soil erosion and other geologic impacts. Compliance with the City's NPDES permit would reduce the City's contribution to cumulative soil erosion impacts. Development projects are analyzed on an individual basis and must comply with established requirements of the City and the UBC as they

pertain to protection against known geologic hazards and potential geologic and expansive soil related impacts. There are no known active faults in the Study Area, there is a low incidence of historical geologic activity in the vicinity, and there is no contribution with other regional geologic impacts. Therefore, any of the Equal-Weight alternatives' contribution to cumulative geology-related impacts is considered **less than cumulatively considerable**.

For a discussion of impact to water quality, please refer to Section 5.13, Hydrology and Water Quality.

Section 5.10 -- Biological Resources

Impact 5.10-20 Habitats for sensitive biological resources.

Foreseeable future development activities in the vicinity of the Study Area would result in considerable disturbance to special-status wildlife and plants, their habitats, and other sensitive biological resources. However, the incremental effect of the proposed project, when combined with the effects created by other past and reasonably foreseeable projects, would be cumulatively considerable even though the project applicant will obtain regulatory approvals and implement the mitigation measures previously described to address direct and indirect effects of the project.

The draft policies, implementation measures and additional mitigation measures recommended above for Project Impacts will help mitigate regional impacts relating to habitat loss for plant and animal species. However, cumulative impacts will remain **cumulatively considerable and significant and unavoidable**.

Section 5.11 -- Agricultural Resources

Impact 5.11-6 Cumulative loss of Important Farmland.

Most of the agricultural land in the western Stanislaus region is considered prime farmland. Cumulative development throughout Stanislaus County and the City of Patterson would impact the region's agricultural resources, and convert prime farmland to urban uses. Future development in accordance with the City's General Plan would incrementally contribute to this substantial change, the impacts of which are described previously in the project-specific analysis. Overall, the cumulative impact to agriculture is considered **cumulatively considerable and significant and unavoidable**.

Impact 5.11-7 Conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40 year (buildout) growth boundaries.

Individual development projects in the City and throughout the region would have the potential to create compatibility conflicts relating to the interface of existing urban and rural uses and new urban development. Such conflicts are expected to be addressed on a case-by-case basis, and can be resolved through appropriate design based on established City policies, further guided by the

mitigation measure 5.11-2(a), which is intended to address compatibility impacts at a programmatic level. Once mitigated, cumulative land use compatibility conflicts would be **less than cumulatively considerable**.

Section 5.12 -- Hazards and Hazardous Materials

Impact 5.12-10 Cumulative increase in the use, storage, and transport of hazardous materials and the risk associated with these materials.

Development accommodated by the Equal-Weight Alternatives could result in increased hazard-related impacts; however, these impacts would be specific to individual sites in the Study Area and are not tied to any regional (beyond the Study Area) hazard or contamination issues (the reader is referred to Section 5.7, Air Quality, regarding regional public health issues associated with air pollutants and toxic air contaminants). Policies of the Draft Policy Document would assist in reducing the impacts. Federal, state, and local regulations would determine appropriate land uses within the vicinity of airports affecting the Study Area. Anticipated development projects (e.g., residential, commercial, park, and recreational land uses) that would occur under any of the Equal-Weight Alternatives would also include, but not be limited to, public and utility extension projects, roadway widening and extensions, intersection improvements, water system distribution improvements, and trail extensions. These proposed land use activities would not significantly increase human health or safety risks.

The draft policies listed under impacts 5.12-1 and 5.12-2 will help mitigate regional impacts relating to hazards and hazardous materials. Cumulative impacts are considered **less than cumulatively considerable**.

Impact 5.12-11 Aircraft operations at the Patterson Airport and the Crows Landing Airfield.

As discussed under Impacts 5.12-5 and 5.12-6, development accommodated by the Equal-Weight Alternatives would increase the number of dwellings, businesses, schools, and other uses in the City which, together with other development in the region, will be exposed to an increased hazard of aircraft operations.

As discussed under impact 5.12-5, all three Equal-Weight Alternatives are consistent with the adopted Airport Land Use Plans for Patterson Airport and Crows Landing Airfield. In addition, as discussed under impact 5.12-6, all three Equal-Weight Alternatives are consistent with the December, 2009 draft Airport Land Use Plan for Crows Landing currently being considered by the County Airport Land Use Commission.

The draft policies listed under impacts 5.12-3 and 5.12-4 will mitigate cumulative impacts associated with aircraft operations. Cumulative impacts are considered **less than cumulatively considerable**.

Impact 5.12-12 Adopted emergency response or evacuation plans.

As discussed under Impact 5.12-7 none of the Equal-Weight Alternatives will conflict with the City's adopted Emergency Operations Plan, which is recommended to be periodically reviewed and updated over time. Since the type and nature of hazards affecting the City and region are not likely to change over time, the procedures provided in the EOP would continue to apply. Should a previously unforeseen potential for emergency arise during the 20 year or 40 year timeframes, the policies and implementation measures which require the periodic update of the EOP would ensure continued consistency.

The draft policies listed under impact 5.12-5 will mitigate cumulative impacts relating associated with consistency with emergency response plans. Cumulative impacts are considered **less than cumulatively considerable**.

Impact 5.12-13 At-grade railroad crossings.

As discussed under Impact 5.12-8, rail traffic may increase in the future along with the population and employment accommodated with any of the Equal-Weight Alternatives plus regional development. Together this will contribute to an increase in the potential exposure of motor vehicles, pedestrians and bicyclists to the hazard associated with at-grade rail crossings. However, as discussed under impact 5.12-8 although the hazard will increase, the overall risk associated with at-grade crossings is still expected to be low.

The draft policies listed under impact 5.12-8 will mitigate cumulative impacts relating to at-grade rail crossings. Cumulative impacts are considered **less than cumulatively considerable**.

Section 5.13 – Hydrology and Water Resources**Impact 5.13-8 Cumulative degradation of water quality from construction activities and increased urban runoff.**

The draft policies will mitigate regional impacts relating to hydrology and water quality. As discussed under impacts 5.13-1 and 5.13-2, urban development accommodated by any of the Equal-Weight Alternatives would increase the amount of sediments and pollutants in surface waters within the Study Area and downstream of the Study Area.

Continued compliance with existing water quality regulations, including the NPDES program, as well as implementation of the policies and programs recommended for impact 5.13-1 as described above would help reduce cumulative impacts to water quality. However, given the scale of development anticipated in the City of Patterson and as described in the general plans of surrounding jurisdictions (see discussion under impact 5.2-3 of section 5.3-Population, Housing and Employment, there is the potential for the cumulative degradation of water quality.

Moreover, compliance with water quality regulations in the region cannot be guaranteed by the City. For these reasons, the cumulative impact to water quality is considered **cumulatively considerable and significant and unavoidable**.

Impact 5.13-9 Cumulative flood conditions along the San Joaquin River and local waterways.

Development accommodated by the Equal-Weight Alternatives would increase the amount of impervious surfaces along with a corresponding increase in the volume and velocity or runoff. This increase in runoff, along with the increase associated with other urban development in the region, could contribute to cumulative flood conditions in the region.

The improvements recommended by the 2010 Storm Drainage Master Plan are designed to ensure that the contribution of runoff from development of the Study Area does not worsen downstream flooding or exceed the capacity of receiving waters. Thus, implementation of the Master Plan, together with compliance with existing flood hazard mitigation, will help mitigate potential impacts relating to regional flooding and water quality. However, the installation of flood control improvements and continued compliance with water quality protection regulations cannot be guaranteed by the City. For these reasons cumulative impacts relating to flooding and water quality are considered **cumulatively considerable and significant and unavoidable**.

Section 5.14 – Visual and Aesthetic Resources

Impact 5.14-3 Cumulative increase in sources of light and glare.

The draft policies listed under impacts 5.14-1 and 5.14-2 for Project Impacts will help mitigate regional impacts relating to scenic and aesthetic resources and light and glare. Applying these policies and implementation measures, such as the continued enforcement of the City's Community Design Guidelines will assist in reducing, but not fully mitigating these cumulative impacts. Therefore, this impact is considered **cumulatively considerable and significant and unavoidable**.

Section 5.15 – Cultural Resources

Impact 5.15-4 Disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features) and human remains.

Continued urban development in the region accommodated by the County and the General Plans of other jurisdictions could result in the disturbance of cultural resources. However, policies recommended by the draft Policy Document as described under impact 5.15-1, 5.14-2 and 5.14-3 would mitigate the contribution of any of the Equal-Weight Alternatives to potential cumulative impacts to these resources. This would be a less than cumulatively considerable impact. Therefore, cumulative impacts to these resources are considered **less than cumulatively significant**.

7.0 GROWTH INDUCING IMPACTS

AND OTHER CEQA TOPICS

This section discusses the additional topics statutorily required by CEQA. The topics discussed include growth inducing impacts, significant irreversible environmental changes/irretrievable commitment of resources and significant and unavoidable environmental impacts.

Growth-Inducing Impacts

The California Environmental Quality Act (CEQA) Guidelines Section 15126.2(d) requires that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed action.

A growth-inducing impact is defined by the State CEQA Guidelines as:

The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth...It is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth inducement potential. Direct growth inducement would result if a project, for example, involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it would involve a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand (*Napa Citizens for Honest Government v. Napa County Board of Supervisors*). Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. A project providing an increased water supply in an area where water service historically limited growth could be considered growth-inducing.

The State CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service.

Components of Growth

The timing, magnitude, and location of land development and population growth in a community are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and non-residential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Since the general plan of a community defines the location, type, and intensity of growth, it is the primary means of regulating development and growth in California.

Growth Effects of the Equal-Weight Project Alternatives

The City of Patterson General Plan is intended to fulfill the requirements of Government Code Section 65300 by providing for the physical development of the City for the next 20 to 40 years. However, the General Plan does not propose any specific development projects but would instead establish the regulatory framework that will accommodate additional development and the resulting population and employment.

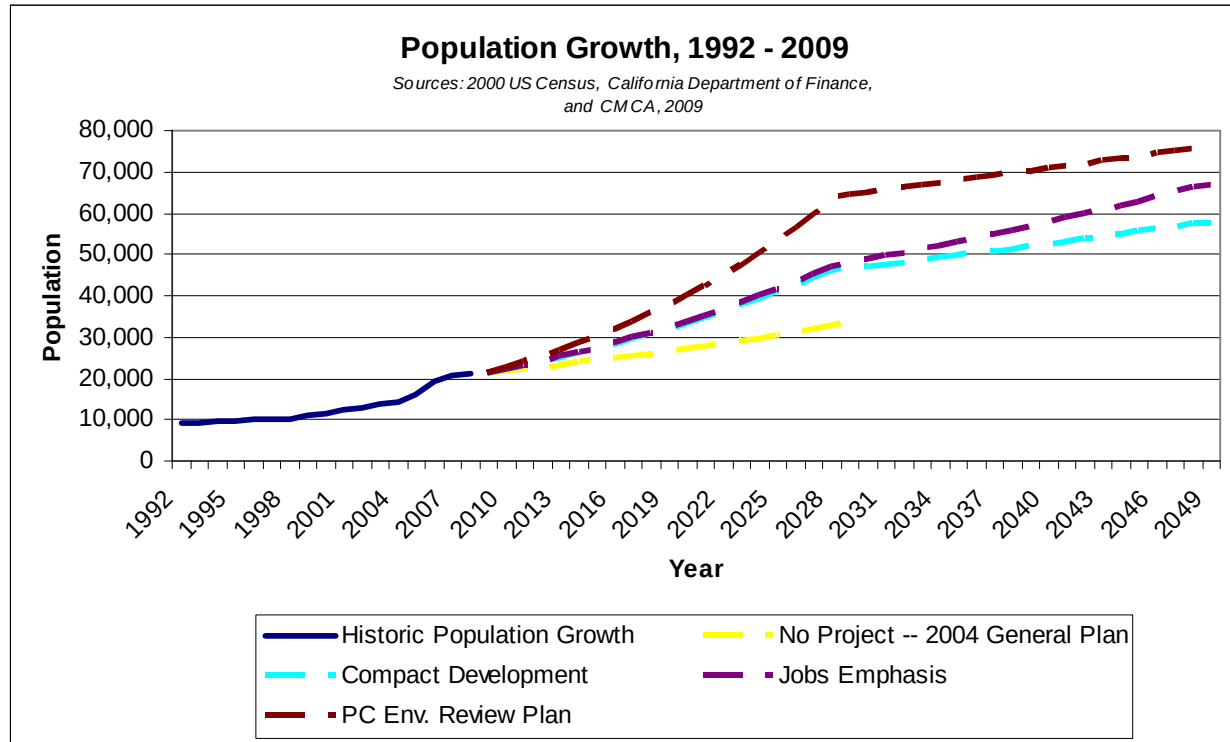
Policies and implementation measures provided in the Draft Policy Document are intended to guide the future development of the City in a manner that achieves most of the basic objectives articulated in Section 3.0 – Description of Equal-Weight Alternatives. In addition, infrastructure improvements are recommended for water supply, wastewater collection and treatment, storm drainage and roadways to serve each of the Equal-Weight Alternatives. The particular environmental effects resulting from the growth and development of the City in accordance with each of the Equal-Weight land use alternatives are assessed in the topical sections of this EIR (sections 5.1 through 5.15).

Growth in Population

As described in Section 5.2, Population, Housing and Employment, each of the Equal-Weight Alternatives designates land for housing that would accommodate a significant increase in the City's population over the 2009 population and over the population accommodated by the currently adopted General Plan. Table 7.0-1 compares the resulting future populations associated with each Equal-Weight Alternative; the comparison is shown graphically on Figure 7.0-1.

Table 7.0-1: Existing and Projected Population			
Alternative	Existing (2009) ¹	2030 Population ²	2050 Population ²
Compact Development	21,229	46,360	57,510
Jobs Emphasis	21,229	47,831	66,673
PC Env. Review Plan	21,229	64,389	75,863
Notes: 1. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009 2. CMCA, 2009			

Figure 7.0-1: Historic and projected population growth



As shown in Table 7.0-1, the range of future population growth that may be accommodated by the Equal-Weight Alternatives ranges from about 46,000 for the Compact Development Alternative in the 20-year timeframe, to about 75,000 for the PC Environmental Review Alternative in the 40-year timeframe. As discussed in Section 5.2-Population, Housing and Employment, the level of development and population growth accommodated by each alternative will very likely be accomplished well beyond the 20-year and 40 year (buildout) timeframes, based on historic rates of growth in the City.

The environmental implications of additional population growth are several-fold. The growth in population associated with each alternative will increase the demand for water, wastewater treatment, roads, schools, police and fire protection, health care and other public services (discussed below) and will increase motor vehicle traffic on roadways serving the Study Area. The growing population will also increase the demand for shopping, employment and service businesses, which is discussed below.

Growth in Employment

As discussed in Section 5.2-Population, Employment and Housing, each of the Equal-Weight Alternatives designates additional land for housing and employment which in turn results in a different ratio of jobs to housing, as shown in Table 7.0-2, below. A ratio of jobs to housing greater than 1.0 means that there are more jobs in Patterson than dwelling units. For each alternative, the projected ratio is expected to be greater than 1.0, assuming all of the housing and all of the employment-generating land uses are developed consistent with the assumptions used in Table 3.0-16. One of the possible implications of a higher ratio of jobs to housing is a greater number of workers commuting to Patterson for work, which in turn would result in an increase

in on-road-motor vehicle trips and resulting air quality and climate change impacts. As discussed under impact 5.2-1 in section 5.2-Population, Housing and Employment, policies and implementation measures provided in the draft Policy Document are aimed at managing the pace of residential and employment-generating development to achieve a greater balance in jobs and housing.

Table 7.0-2: Summary Dwelling Units and Employment of Equal Weight Alternatives						
Attributes	Compact Development		Jobs Emphasis		PC Env. Review Plan	
	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	15,153	18,992	15,711	22,151	21,687	25,589
Employment	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	1.42	1.34	1.69	1.30	1.19	1.13
Notes:						
1. Source: CMCA, 2009						

Growth Effects Associated with Infrastructure Improvements

All three of the Equal-Weight Alternatives could indirectly induce growth if it would remove an obstacle to additional growth and development, such as a constraint on a required public service.

The City provides a range of public services that include water supply, wastewater collection and treatment, storm drainage and roads. The expansion of the capacities of each of these services will be needed to serve each of the Equal-Weight Alternatives. The reader is referred to sections 5.3-Public Services, 5.4- Water Supply, 5.5- Wastewater Collection and Treatment, and 5.6-Tranportation. The removal of constraints by improvements recommended for these services will be growth-inducing in accordance with each of the land uses recommended by Equal-Weight alternatives.

The Preliminary Circulation Plan recommends roadway improvements to accommodate the levels of traffic anticipated by each of the Equal-Weight Alternatives and maintain the desired level of service on area roadways and intersections through both a 20-year and a 40 year (buildout) timeframe.

Lastly, the infrastructure improvements recommended in sections 5.3-Public Services, 5.4-Water Supply, 5.5- Wastewater Collection and Treatment, and 5.6-Tranportation do not include provisions requiring the oversizing of infrastructure facilities to serve growth not anticipated by the 20-year and 40 year (buildout) timeframes associated with each Equal-Weight Alternative. Nonetheless, the sizing of infrastructure installed in 2010 to serve development anticipated in 20 to 40 years can be considered growth-inducing to the extent that it would “...remove obstacles to population growth...” as described above in Guidelines Section 15126.2. The oversizing of utilities

could hasten development by removing infrastructure limitations relating to water supply, roadways, wastewater collection and storm drainage.

Environmental Effects of Growth

As described above, each of the Equal-Weight Alternatives would induce further job growth in the City as well as potentially induce growth outside (i.e., growth displacement) of the City in surrounding communities where housing is available. As a result, all three Equal-Weight Alternatives are considered growth-inducing. The environmental effects of growth accommodated by each of the Equal-Weight Alternatives are addressed in Sections 5.1 through 5.15 of this EIR, and the project's cumulative impacts are addressed in Section 6.0. The following additional environmental effects could be experienced due to growth in the region:

- Air Quality – Increases in air pollutant emissions potentially conflicting with air quality attainment efforts under state and federal Clean Air Acts, greenhouse gas emissions, and increased potential for the exposure to toxic air contaminants.
- Water Supply – Depletion of water available for agricultural uses and depletion of the groundwater basin.
- Geology and Soils – Increased development in an area prone to seismic hazard, landslides, and ground failure.
- Hydrology and Water Quality – Increased development in an area prone to flooding.
- Noise – Increased transportation noise levels from increased traffic volumes.
- Population/Housing/Employment – Increase in employment in the City in excess of the increase of housing, resulting in a jobs/housing imbalance that could trigger displacement of growth to other areas resulting in land disturbance impacts and traffic impacts.
- Public Services and Utilities – Increased demand for public services and utilities.
- Traffic – Increased traffic volumes on the region's highways and regional roadways resulting in deficient levels of service of operation.
- Permanent conversion of productive agricultural land to urban or other non-agricultural uses.
- The permanent loss of habitat for special-status plant and animal species.

Significant Irreversible Environmental Effects

CEQA Guidelines Sections 21100(b)(2) and 21100.1(a) require that EIRs prepared for the adoption of a plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes of project implementation. In addition, CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes as:

Uses of nonrenewable resources during the initial and continued phases of development 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.

Implementation of any of the Equal-Weight Alternatives could result in the conversion of undeveloped and/or underutilized residential zoned properties to residential, commercial, office, public, and recreational uses. More importantly, the outward expansion of the City may only occur on land that is either productive farmland and/or habitat for special-status plant and animal species. Subsequent development would constitute a long-term commitment to these uses. It is unlikely that circumstances would arise that would justify the return of the land to its original condition.

Development of the City under any of the Equal-Weight Alternatives would irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure. Renewable, nonrenewable, and limited resources that would likely be consumed as part of the development of the proposed project would include, but are not limited to, oil, gasoline, lumber, sand and gravel, asphalt, water, steel, and similar materials. In addition, development of the project would result in the increased demand on public services and utilities (see Section 5.3, Public Services and Utilities).

The project would also result in significant unavoidable effects related to air emissions, including emissions of greenhouse gases (see Section 5.5, Air Quality).

Significant and Unavoidable Environmental Effects

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine whether the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The City can approve a project with unavoidable adverse impacts if it adopts a “Statement of Overriding Considerations” setting forth the specific reasons for making such a judgment.

The following significant and unavoidable impacts (project and cumulative) associated with development of the City in accordance with each of the Equal-Weight Alternatives are specifically identified in Sections 5.1 through 5.15 and Section 6.0 of this EIR.

The reader is referred to the various environmental issue areas of these sections for further details and analysis of the significant and unavoidable impacts identified below.

Section 5.1 Land Use

Consistency with the County General Plan

Impact 5.1-2 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives are inconsistent with policies and development regulations of the Stanislaus County General Plan. This impact is considered significant and unavoidable.

Consistency with LAFCo Policies

Impact 5.1-4 Inconsistencies with adopted policies, rules and procedures of the Stanislaus Local Agency Formation Commission. This impact is considered significant and unavoidable.

Consistency with Adopted Plans and Policies, Cumulative Population Growth

Impact 5.1-5 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development will contribute to cumulative land use changes with resulting inconsistencies with adopted plans and policies and potential land use compatibility impacts. Moreover, each alternative accommodates a level of development and population that exceeds the level anticipated by adopted plans and policies. These impacts are considered significant and unavoidable.

Section 5.2 Population/Housing/Employment

Population, Housing and Employment

Impact 5.2-1 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives each designate land that will accommodate additional urban development which will increase housing, population and employment above 2009 levels. Urban development will in turn result in direct and indirect physical impacts to the environment. This impact is considered significant and unavoidable.

Cumulative Impacts to Population, Housing and Employment

Impact 5.2-3 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with regional development will exceed population and employment projections used for planning purposes by regional planning agencies that include the Stanislaus Council of Governments, Merced Association of Governments and the San Joaquin Council of Governments. This impact is considered cumulatively considerable and significant and unavoidable.

Section 5.3 Public Services

Cumulative Impacts to Health Care Facilities

Impact 5.3-5 The Compact Development, Jobs Emphasis or PC Environmental Review Alternatives would generate additional population and employment opportunities in Patterson within the 20-year and 40-year (buildout) growth boundaries, which in turn will increase the demand for health care facilities. This impact is considered significant and unavoidable.

Cumulative Impacts to Solid Waste Disposal Capacity

Impact 5.3-7 Future development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives together with solid waste generated by regional development will generate additional solid waste which in turn will exceed the capacity of the landfill serving the City. This impact is considered significant and unavoidable.

Impacts for Construction Public Facilities

Impact 5.3-11 The discussion of project impacts includes the effects of construction of new public facilities. Because their locations have not been determined, it cannot be determined what the precise impacts for each facility will be. Thus, the impacts associated with the construction of additional fire and police stations, parks, health care facilities, schools, and electricity, natural gas and communications lines. are considered significant and unavoidable.

Section 5.4 Water Supply

Water Demand

Impact 5.4-1 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives in either the 20-year or 40-year (buildout) growth boundaries will require additional water supplies beyond supplies currently available to the City. This impact is considered significant and unavoidable.

Construction of Water Supply Infrastructure

Impact 5.4-2. Supplying water to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of water supply conveyance infrastructure into previously un-served areas. This impact is considered significant and unavoidable.

Impacts to Surrounding Wells from Increased Groundwater Pumping

Impact 5.4-3 Pumping groundwater to serve the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives for the 20-year and 40-year (buildout) growth boundaries could create one or more “cones of depression” beneath the City’s wells. This impact is considered significant and unavoidable.

Brine Disposal from Treated Water

Impact 5.4-4 Increased reliance on groundwater and surface water to serve any of the Equal-Weight Alternatives may necessitate the treatment of these water sources. The treatment of groundwater or surface water, and the disposal of concentrated brine created as a byproduct of such treatment, could result in the construction of new physical facilities on agricultural land, resulting in the loss of agricultural land and temporary construction impacts, and in the production of a waste product that may require special disposal methods. This impact is considered significant and unavoidable.

Reduction of Water Available for Agricultural Operations

Impact 5.4-5 Implementation of any of the Equal-Weight Alternatives would result in the cumulative reduction of water available for agricultural operations in the area. This impact is considered cumulatively considerable and significant and unavoidable.

Section 5.5 Wastewater

Construction of Wastewater Collection and Disposal Infrastructure

Impact 5.5-2. The Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of wastewater collection infrastructure into previously un-served areas. This impact is considered significant and unavoidable.

Required Amendment to Wastewater Discharge Permit

Impact 5.5-3 The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will require additional treatment capacity to accommodate anticipated demands that exceeds the current waste discharge volume permitted by the Regional Water Quality Control Board. Because a revision of the City’s discharge permit is under the authority of a separate agency (the RWQCB), it cannot be guaranteed. Therefore, this impact is considered significant and unavoidable.

Section 5.6 Transportation

Impacts to Roadway Segments in 20 Year Timeframe

Impacts 5.6-1, 5.6-3, 5.6-5, 5.6-16: The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in levels of service on area roadway segments that could exceed the level of service of the City, Caltrans or Stanislaus County in the 20-year timeframe. This impact is considered cumulatively considerable and significant and unavoidable.

Impacts to Roadway Segments in 40 year (buildout) Timeframe

Impacts 5.6-2, 5.6-4, 5.6-6, 5.6-16: The Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will result in levels of service on area roadway segments that could exceed the level of service of the City, Caltrans or Stanislaus County in the 40-year (buildout) timeframe. This impact is considered cumulatively considerable and significant and unavoidable.

Increased Truck Traffic

Impact 5.6-7 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternative in the 20-year and 40-year (buildout) timeframes will increase truck traffic through the City, which in turn could adversely impact residential neighborhoods and result in potential traffic hazards on Study Area roadways. This impact is considered significant and unavoidable.

Impacts to Roadways of Other Jurisdictions

Impacts 5.6-8, 5.6-17 Traffic generated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will adversely impact roadways of other jurisdictions over the 20-year and 40-year (buildout) timeframes. This impact is considered cumulatively considerable and significant and unavoidable.

Cumulative Traffic Impacts on Freeway Operations

Impacts 5.6-9, 5.6-18 Implementation of any of the Equal-Weight Alternatives would result in increased motor vehicle traffic, which would contribute to an unacceptable level of service (LOS) on Interstate 5 in both the 20-year and 40-year (buildout) timeframes. This impact is considered cumulatively considerable and significant and unavoidable.

Impacts to Transit Facilities

Impact 5.6-10 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives could increase the demand for transit facilities in the 20-year and 40-year (buildout) timeframes. This impact is considered cumulatively considerable and significant and unavoidable.

Impacts to Pedestrian Facilities

Impact 5.6-11, 5.6-18 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives could result in an impact on pedestrian facilities through the 20-year and 40-year (buildout) timeframes. This impact is considered cumulatively considerable and significant and unavoidable.

Impacts to Bicycle Facilities

Impact 5.6-12, 5.6-18 Implementation of the Compact Development, Jobs Emphasis or PC Environmental Review alternatives would adversely affect bicycle facilities through the 20-year

and 40-year (buildout) timeframes. This impact is considered cumulatively considerable and significant and unavoidable.

Potential Traffic Hazards

Impact 5.6-14 Development accommodated by the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternative will significantly increase the volume of traffic on streets and intersections serving the Study Area through the 20-year and 40-year (buildout) timeframes, which in turn could increase potential traffic hazards. This impact is considered significant and unavoidable.

Construction of Roadway and Intersection Improvements

Impact 5.6-15 The construction of roadway and intersection improvements necessary to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of roads into previously un-served areas and the widening of roads and intersections serving the Study Area. This impact is considered significant and unavoidable.

Section 5.7 Air Quality

Emission of Ozone Precursors

Impact 5.7-3 Operational emissions associated with the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives for both the 20-year and 40-year (buildout) growth boundaries would exceed the 10 ton per year significance threshold for ozone precursor emissions. This is considered a significant and unavoidable impact.

Consistency with Extreme Ozone Attainment Demonstration Plan

Impact 5.7-4 The Compact Development, Jobs Emphasis and PC Environmental review Alternatives would allow for population growth that will exceed projections assumed in the 2007 Extreme Ozone Attainment Demonstration Plan and potentially conflict with particulate matter reduction measures. This inconsistency could obstruct the SJVUAPCD's ozone attainment strategy and particulate matter (PM10 and PM2.5) attainment efforts. This impact is considered to be significant and unavoidable.

Carbon Monoxide Hotspots

Impact 5.7-5 The Compact Development, Jobs Emphasis and PC Environmental Review Alternatives would allow continued growth in population, housing, and jobs that would increase traffic volumes on local roadways. This would result in elevated CO emissions from motor vehicle congestion that could expose sensitive receptors to elevated CO concentrations. This is considered significant and unavoidable.

Climate Change

Impact 5.7-6 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternative as well as the Compact Growth Alternative within both the 20-year and 40-year (buildout) growth boundaries would result in an increase in population and associated GHG emissions over existing conditions (2009) that may result in adverse environmental effects to the Study Area. This impact is considered cumulatively considerable and significant and unavoidable.

Risk Associated With Climate Change

Impact 5.7-7 Property and persons accommodated by development associated with the Compact Development Jobs Emphasis and Planning Commission Environmental Review Alternatives within the 20-year and 40-year (buildout) growth boundaries may be subject to additional risk of physical harm related to flooding, public health, wildfire risk and other impacts resulting from climate change. This impact is considered cumulatively considerable and significant and unavoidable.

Cumulative Emission of Air Pollutants

Impact 5.7-8 Development accommodated by any of the Equal-Weight Alternatives together with cumulative development in the San Joaquin Valley Air Basin, would contribute to cumulative air quality impacts and could conflict with ozone and particulate matter attainment efforts. This is considered a cumulatively considerable and significant and unavoidable impact.

Section 5.8 Noise

Traffic Noise

Impact 5.8-2 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review alternatives within both the 20-year and 40-year (buildout) growth boundaries would result in increases in traffic noise levels in excess of City of Patterson noise standards. This is considered a significant and unavoidable impact.

Encroachment of Noise from Stationary Sources

Impact 5.8.5 As additional development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Alternatives occurs throughout the Study Area within both the 20-year and 40-year (buildout) growth boundaries, the potential exists for new noise-sensitive land uses to encroach upon existing or proposed stationary noise sources. This is considered a significant and unavoidable impact.

Cumulative Noise Impacts

Impact 5.8-7 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review alternatives within the 20-year or 40-year (buildout) growth boundaries along with development in the region will result in increased noise conflicts. This is considered a cumulatively considerable and a significant and unavoidable impact.

Section 5.10 Biological Resources

Cumulative Impacts to Sensitive Biological Resources

Impact 5.10-20 Development activities in the region inclusive of those accommodated by the No Project and equal-Weight Alternatives would result in disturbance to special-status wildlife and plants, their habitats, and other sensitive biological resources. The incremental effect of development within the Study Area when combined with the effects created by other past and reasonably foreseeable future projects would be mitigated by individual project applicants obtaining regulatory approvals and by implementation of the policies and implementation measures discussed in section 5.10. However, development accommodated by the No Project and Equal-Weight Alternatives in conjunction with regional development could still result in the loss of substantial sensitive habitat areas as well as farmland utilized by state and federally listed species. This impact is considered cumulatively considerable and significant and unavoidable.

Section 5.11 Agricultural Resources

Permanent Loss of Prime Agricultural Land and Other Important Farmland

Impact 5.11-1 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result in the permanent loss of prime farmland in the 20-year and 40-year (buildout) timeframes. This impact is considered significant and unavoidable.

Permanent Loss of Prime Agricultural Land for Road Widenings

Impact 5.11-2 The widening of roadways outside the Study Area would result in the permanent loss of Important Farmland during the 20-year and 40-year (buildout) timeframes for each Equal-Weight Alternative. This impact is considered significant and unavoidable.

Permanent Loss of Prime Agricultural Land to Construct a Regional Park

Impact 5.11-3 Construction of a regional park in the vicinity of the San Joaquin River would result in the permanent loss of Important Farmland. This impact is considered significant and unavoidable.

Conflicts between Urban Land Uses and Ongoing Agricultural Operations

Impact 5.11-4 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would create conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40-year (buildout) growth boundaries. This impact is considered significant and unavoidable.

Conflicts between Urban Land Uses and Ongoing Agricultural Operations

Impact 5.11-5 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives for the 20-year and 40-year (buildout) timeframes together with regional development, potential roadway improvements and a regional park will contribute to the cumulative loss of important farmland. This impact is considered cumulatively considerable and significant and unavoidable.

Cumulative Loss of Important Farmland

Impact 5.11-6 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives within the 20-year and 40-year (buildout) growth boundaries together with regional development, potential roadway improvements and a regional park will contribute to the cumulative loss of Important Farmland. This impact is considered cumulatively considerable and significant and unavoidable.

Cumulative Conflicts between Urban Land Uses and Ongoing Agricultural Operations

Impact 5.11-7 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives would create conflicts between proposed urban uses and existing and future agricultural uses within the 20-year and 40-year (buildout) growth boundaries. These impacts are considered cumulatively considerable and significant and unavoidable.

Section 5.13 Hydrology and Water Resources

Construction of Drainage Infrastructure

Impact 5.13-5 Supplying storm drainage facilities to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year (buildout) growth boundaries will require the extension of storm water conveyance and storage

infrastructure into previously un-served areas. This impact is considered significant and unavoidable.

Development in Areas Subject To Flooding

Impact 5.13-7 Portions of the areas designated for urban development by the Compact Development, Jobs Emphasis and PC Environmental Review Plan are subject to flooding during a 100-year flood event which could expose people and property to the risk of flooding. This is considered a significant and unavoidable impact.

Cumulative Degradation of Water Quality

Impact 5.13-8 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives along with foreseeable development in the region would contribute to a cumulative degradation of water quality from construction activities and increased urban runoff. This impact is considered cumulatively considerable and significant and unavoidable.

Cumulative Increase in Runoff and Potential Flooding

Impact 5.13-9 Development accommodated by the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives along with foreseeable development in the region would increase impervious surfaces and alter drainage conditions and rates in the Study Area, which could contribute to cumulative flood conditions along the San Joaquin River and local waterways. This impact is considered cumulatively considerable and significant and unavoidable.

Section 5.14 Visual and Aesthetic Resources

Scenic Qualities of the Study Area

Impact 5.14-1 The Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives will result in the permanent alteration of the scenic qualities in the Study Area during the 20-year and 40-year (buildout) timeframes, including views from a State Designated Scenic Highway. This impact is considered significant and unavoidable.

Cumulative Impacts to Scenic Quality and Light and Glare

Impact 5.14-3 Implementation of the Compact Development, Jobs Emphasis and PC Environmental Review Plan Alternatives together with development in the region would result in the cumulative and permanent alteration of the area's scenic qualities during the next 40 years and would result in the cumulative increase in sources of light and glare. This impact is considered cumulatively considerable and significant and unavoidable.

References

California Public Resources Code 22000 et seq

California Code of Regulations, Title 14 section 15000 et seq

State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009

8.0 ALTERNATIVES

Introduction

State CEQA Guidelines Section 15126.6(a) states that

“...an environmental impact report (EIR) shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening one or more of the significant environmental impacts of the project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives shall focus on those which are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly.” (State CEQA Guidelines Section 15126.6[b]).

According to the State CEQA Guidelines, an EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. When addressing feasibility, the State CEQA Guidelines Section 15126.6 states that

“among 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, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites.”

The State CEQA Guidelines also specify that the discussion of alternatives should not be remote or speculative; however, they need not be presented in the same level of detail as the assessment of the proposed project.

State CEQA Guidelines indicate that several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project, (2) the ability of alternatives to avoid or lessen the significant impacts associated with the project, (3) the ability of the alternatives to meet the objectives of the project, and (4) the feasibility of the alternatives. These factors would be unique for each project.

Alternatives Considered In This EIR

As discussed in Section 3.0 – Description of Equal-Weight Alternatives, the consultants assisting the City with the General Plan update prepared the draft goals, policies, and implementation programs based on community input and the direction of the City’s General Plan Advisory Committee. The draft Policy Document and three land use alternatives and a circulation diagram were presented to the City’s Planning Commission in February, 2009 for their consideration and direction. The three alternatives considered by the Planning Commission were as follows:

The General Plan Advisory Committee Recommendation. This alternative represents the land use recommendations of the City’s General Plan Advisory Committee which was composed of representatives of the City Council and Planning Commission, as well as members of the public and representatives of other public agencies such as the Patterson Unified School District.

The Jobs Emphasis Alternative. This alternative emphasizes land uses in the 20 year growth timeframe to accommodate job generation and additional retail development which were identified as priorities by the community and the General Plan Advisory Committee.

Compact Development Alternative. This alternative accomplishes most of the basic objectives identified for the General Plan update but incorporates a higher average residential density and therefore consumes less land. This alternative minimizes the conversion of productive agricultural land and sensitive biological habitats, reduces motor vehicle use and facilitates alternate forms of transportation.

After considering the three alternatives and the draft Policy Document, the Commission directed the consultants to include the following alternatives in the General Plan EIR:

- Compact Development
- Jobs Emphasis
- The GPAC recommendations with the following changes:
 - The Mixed Use area west of I-5 has been included in the 40-year planning growth boundary.
 - The retail commercial area at the I-5/Zacharias Road has been reduced in size to about 40 acres.

To distinguish this alternative from the recommendations of the General Plan Advisory Committee, this alternative is referred to as the *Planning Commission Environmental Review Alternative*.

The Commission did not identify a preferred alternative from among those presented and directed that each alternative be treated equally in the analysis. Accordingly, each alternative was given equal weight in the analysis provided in Sections 5.1 through 5.15 of this EIR. The three alternatives are referred to collectively as the Equal-Weight Alternatives.

Each of the Equal-Weight Alternatives was chosen to provide a range of policy choices that emphasizes different General Plan objectives. The Planning Commission Environmental Review Alternative was chosen because it is the alternative that most closely represents the recommendations of the City's General Plan Advisory Committee. The Jobs Emphasis Alternative was chosen because it emphasizes job creation, improving the ratio of jobs to housing, the provision of shopping and economic development in the first 20 years consistent with General Plan objectives aimed at economic development. The Compact Development Alternative provides land for additional jobs and housing to meet General Plan objectives relating to affordable housing and balancing jobs and housing while minimizing the conversion of productive agricultural land and the loss of important biological resources.

Each alternative as described in greater detail below and in section 3.0-Description of Equal-Weight Project Alternatives. As discussed in the topical analyses provided in sections 5.1 through 5.15, each of the Equal-Weight Alternatives result in different levels of environmental impacts that avoid or lessen one or more significant environmental effects, while affording a reasonable range of options for decision-makers to consider with regard to the City's General Plan. These alternatives constitute an adequate range of reasonable alternatives as required under State CEQA Guidelines Section 15126.6.

The Compact Development Alternative

The Compact Development Alternative is shown on Figure 3.0-6 of section 3.0-Description of Equal Weight Project Alternatives and the development holding capacity is provided on Table 8.0-1. This alternative applies a higher average residential density (6.0 versus 4.0) to achieve a comparable level of population growth as the Jobs Emphasis Alternative, but using less land.

Key attributes of this alternative are:

- The population holding capacity of the 20-year plan is about 46,360. The population of the 40-year plan is about 57,500.
- New residential neighborhoods are shown to the northeast of the Patterson Business Park but ending at Zacharias Road.
- Land between the canals is designated for industrial development under the 40-year plan;
- An area of about 40 acres is designated for General Commercial development at the westerly extension of Zacharias Road and I-5.
- No land for urban development is designated west of I-5 except for five acres of Highway Serving Commercial development west of the Sperry Avenue interchange and another 15 acres west of I-5 at Zacharias Road.
- The area between Interstate 5 and the California Aqueduct is shown as agriculture.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as industrial, a continuation of the Patterson Business Park. The area on the east side of Rogers Road north of the Business Park is designated for industrial development following the property lines north to Zacharias Road.
- The area south of the City and north of Elfers Road is designated for residential development in the 40-year Plan.
- The areas designated for future residential development do not extend beyond sycamore Avenue to the east.

Of the three Equal-Weight Alternatives, the Compact Development Alternative more effectively embodies the following principles of ‘Smart Growth’, summarized as follows:

- *Create A Range of Housing Opportunities and Choices*. Providing quality housing for people of all income levels is an integral component in any smart growth strategy.
- *Create Walkable Neighborhoods*. Walkable communities are desirable places to live, work, learn, worship and play, and therefore a key component of smart growth.
- *Encourage Community and Stakeholder Collaboration*. Growth can create great places to live, work and play -- if it responds to a community’s own sense of how and where it wants to grow.
- *Foster Distinctive, Attractive Communities with a Strong Sense of Place*. Smart growth encourages communities to craft a vision and set standards for development and construction which respond to community values of architectural beauty and distinctiveness, as well as expanded choices in housing and transportation.
- *Make Development Decisions Predictable, Fair and Cost Effective*. For a community to be successful in implementing smart growth, it must be embraced by the private sector.

- *Provide a Mix of Land Uses.* Smart growth supports the integration of mixed land uses into communities as a critical component of achieving better places to live.
- *Preserve Open Space, Farmland, Natural Beauty and Critical Environmental Areas.* Open space preservation supports smart growth goals by bolstering local economies, preserving critical environmental areas, improving our community's quality of life, and guiding new growth into existing communities.
- *Provide a Variety of Transportation Choices.* Providing people with more choices in housing, shopping, communities, and transportation is a key aim of smart growth.
- *Strengthen and Direct Development Towards Existing Communities.* Smart growth directs development towards existing communities already served by infrastructure, seeking to utilize the resources that existing neighborhoods offer, and conserve open space and irreplaceable natural resources on the urban fringe.
- *Take Advantage of Compact Building Design.* Smart growth provides a means for communities to incorporate more compact building design as an alternative to conventional, land consumptive development.

The Jobs Emphasis Alternative

The Jobs Emphasis Alternative accommodates a 20-year and 40-year population of 47,831 and 66,673, respectively. Under this alternative, job creation is emphasized in the first twenty years with the designation of additional land for commercial and industrial development. Under this alternative, the ratio of jobs to housing in the first 20-years could be as high as 1.7 jobs per dwelling unit, assuming all of the land designated for industrial and commercial development is built.

Key attributes of this alternative are:

- New residential neighborhoods are shown to the north of the Patterson Business Park and on the land north of Zacharias Road surrounding the high school site west of Highway 33 and west of the current City limits and south of Zacharias Road.
- The land west of I-5 is shown with a 'Mixed Use' designation which would accommodate housing and commercial development.
- Land between the California Aqueduct and the Delta Mendota Canal is shown as industrial in the 20-year growth boundary.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as industrial.
- The area south of Elfers Road has been designated Estate Residential.
- Also under this Plan, the areas designated for residential development to the east of the City extend to a point about mid way between Sycamore Avenue and Elm Avenue and included within the 40-year growth boundary. The areas designated for residential development to the south of the City are included in the 40-year growth boundary.

Planning Commission Environmental Review Alternative

The Planning Commission Environmental Review alternative is shown as Figure 3.0-8 of section 3.0-Description of Equal-Weight Project Alternatives; the development holding capacity is summarized on Table 8.0-1. Key attributes of the Plan are:

- The population holding capacity of the 20-year plan is about 64,389. The population of the 40-year plan is about 75,863.
- New residential neighborhoods are shown to the north and west of the current City limits and south of Zacharias Road. Residential is also extended to the east to Elm Avenue.
- North of Zacharias and south of Del Puerto Creek is designated for additional industrial development, including the land surrounding the future site of Patterson High School.
- Land between the canals is designated for additional commercial development nearest the Sperry Avenue interchange along Rogers Road, and at the westerly extension of Zacharias Road where a new freeway interchange may be located.
- Between these two commercial nodes is land designated for industrial development.
- The area west of I-5 is shown with a 'Mixed Use' designation which would accommodate housing and commercial development.
- A portion of the area between Interstate 5 and the California Aqueduct is shown as industrial in the 40-year plan.
- The area west of Rogers Road and north of the westerly extension of the Business Park is shown as residential.
- The area south of Elfers Road has been designated Estate Residential with a cluster subdivision requirement.
- The resulting ratio of jobs to housing for the 20-year plan is about 1.37, and about 1.13 for the 40-year plan. This means there would be more jobs in Patterson than dwelling units in both the 20-year and 40-year plans, assuming all of the land designated for commercial and industrial development is consumed and deducting 30 percent to account for part-time jobs.

As discussed above, this alternative is identical to the recommendations of the General Plan Advisory Committee, with the following exceptions:

- The Mixed Use area west of I-5 has been included in the 40-year planning growth boundary.
- The retail commercial area at the I-5/Zacharias Road has been reduced in size to about 40 acres.

The No Project Alternative

In addition to the Equal-Weight Alternatives, this EIR considers the No Project Alternative as required by CEQA Guidelines section 15126.6 (e). State CEQA Guidelines 15126.6(e)(3)(A), specifically states that when the project under evaluation is the revision of an existing land use or regulatory plan, the “no project” alternative will be the continuation of the existing plan. Thus, under the No Project Alternative, the currently adopted 1992 General Plan Policy Document, Land Use and Circulation Diagrams (with amendments through 2010) would remain in effect and continue to guide the future growth and development of the City. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The Baseline Conditions that existed at the time the Notice of Preparation was distributed is described in section 4.0-Setting.

As shown in Table 8.0-1, the No Project Alternative would accommodate about 33,000 residents at buildout which would occur sometime during the next 20 years. In addition, the No Project Alternative would accommodate a total of 4.8 million square feet of commercial floor space and about 9.4 million square feet of industrial buildings. The potential ratio of jobs to housing at buildout would be about 1.41 if the number of jobs expected for commercial and industrial development were to be realized.

Lower Carbon Future Alternative

In September, 2009, the California Attorney General published guidelines for the analysis of potential climate change impacts in CEQA documents prepared for general plan updates. The guidelines state that a city should, if feasible, evaluate at least one alternative that would ensure that the community contributes to a “lower carbon future”. The guidelines provide examples of attributes that would contribute to a lower carbon future, which include:

- Higher density development that focuses growth within existing urban areas;
- Policies and programs to facilitate and increase biking, walking, and public transportation and reduce vehicle miles traveled;
- The creation of “complete neighborhoods” where local services, schools, and parks are within walking distance of residences;
- Incentives for mixed-use development;
- In rural communities, creation of regional service centers to reduce vehicle miles traveled;
- Energy efficiency and renewable energy financing;
- Policies for the preservation of agricultural and forested land serving as carbon sinks;
- Requirements and ordinances that mandate energy and water conservation and green building practices;

Figure 8.0-1 illustrates the distribution of land uses associated with a Lower Carbon Future Alternative; the development holding capacity is provided in Table 8.0-01 in comparison to the Equal-Weight and No Project Alternatives. For purposes of this analysis, the Lower Carbon Future Alternative is identical to of the Compact Development Alternative with the following changes:

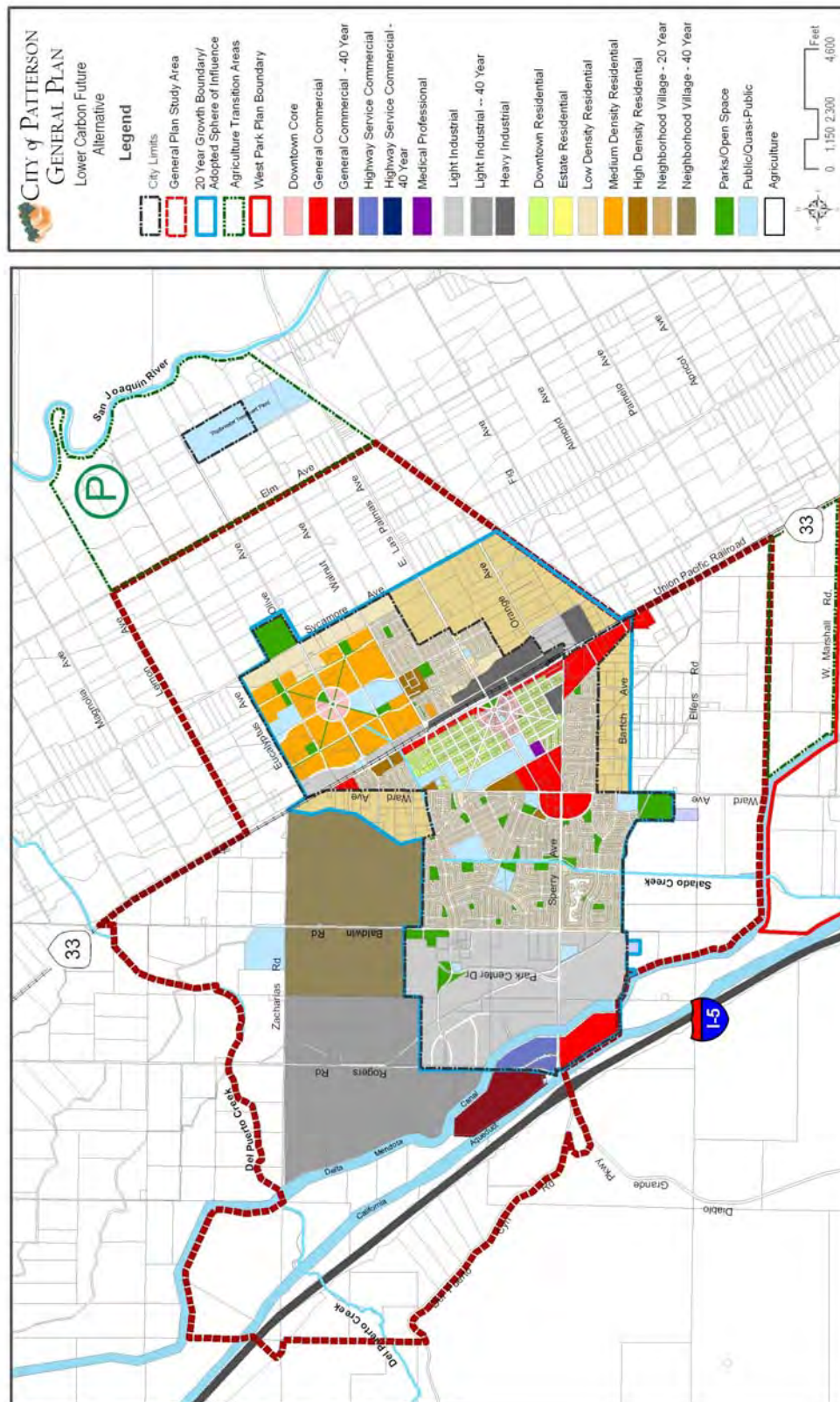
- The 20-year growth boundary has been reduced to coincide with the City’s currently adopted sphere of influence;
- The 40-year growth boundary has been reduced to coincide with the previous 20-year growth boundary;
- Land within the sphere of influence but outside the current City limits is designated *Neighborhood Village* which allows for an intensification of development over the existing designation of Low Density Residential;
- A 40-year growth boundary is shown with land designated *Neighborhood Village*, *General Commercial* and *Light Industrial* development.

As shown in Table 8.0-1, development accommodated within the 40-year growth boundary of the Lower Carbon Future Alternative is roughly equal to the development holding capacity of the 20-year growth boundary of the Compact Development Alternative. The Low Carbon Future Alternative accommodates a higher population than the 1992 General Plan, but less than the Compact Development Alternative at the 40 year buildout.

The Lower Carbon Future Alternative has not been afforded the same level of quantitative analysis as that provided for the Equal-Weight Alternative in sections 5.1 through 5.15 of this EIR. Rather, it is

analyzed to the standard prescribed by CEQA Guidelines section 15126.6 and offered to provide decision-makers with an alternative that meets most of the basic objectives of the general plan update and results in lower future emissions of greenhouse gases when compared with the other project alternatives.

Figure 8.0-1 Lower Carbon Future Alternative



Alternative Considered But Rejected

Off-Site Alternative

Given the nature of the project (adoption of a new General Plan the City of Patterson) it would not be pertinent to address another area that does not include the current City boundaries. Further, this alternative would not meet the basic project objectives identified in Section 3.0, Project Description. For these reasons, an off-site alternative is considered infeasible pursuant to State CEQA Guidelines 15126.6(c).

No Outward Expansion Alternative

This alternative would confine growth and associated improvements to the existing City limits in order to avoid environmental impacts identified for each of the Equal-Weight Alternatives. However, this alternative would present conflicts with the City's obligations to meet state-required housing allocations and would not meet the following basic project objectives:

- Encouraging a more diverse range of commercial uses in Patterson is important, especially increased retail opportunities for large-scale, single tenant retail and/or smaller scale department stores, as well as greater variety of restaurants.
- A strong economy is important to the desirable quality of life in Patterson. Industries that provide well-paying jobs and economic stability are especially valuable. The City should consider programs to actively recruit and retain such businesses for the West Patterson Business Park and elsewhere. In addition, the General Plan should continue to provide suitable locations for heavier industrial development.
- Affordable housing is an important issue facing Patterson residents. The General Plan should ensure that sufficient affordable housing is provided to meet the needs of all income groups. Of particular importance is the provision of suitable land for higher-density residential development and entry-level for-sale housing.
- The General Plan should investigate appropriate locations for an institution of higher education, such as a community college or university.
- The provision of health care services to Patterson residents is a critical issue. The General Plan should provide guidance with respect to the appropriate location for new and/or expanded health care services, and explore strategies for funding such services with the Health Care District and other jurisdictions.
- The General Plan should investigate the need for, and options for providing, an additional interchange on the I-5 freeway north of the City.
- The General Plan should also assess the need for, and the location of, one or more expressways to bypass the City on the north and/or south to provide an additional east-west connection to the I-5 freeway.

For these reasons, this alternative is considered infeasible.

Table 8.0-1: Summary Development Holding Capacity of Alternatives

Attributes	No Project-Buildout of 1992 Plan	Least Carbon Future		Compact Development		Jobs Emphasis		PC Env. Review Plan	
	Total At Buildout	Total in 20 Years	Total at buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout	Total In 20 Years	Total At Buildout
Dwelling Units	10,345	10,950	15,153	15,153	18,992	15,711	22,151	21,687	25,589
Population	33,196	35,000	46,360	46,360	57,510	47,831	66,673	64,389	75,863
Commercial Floor Area (sq.ft.)	4,854,224	4,719,325	6,081,011	6,081,011	7,586,263	10,350,468	12,639,691	6,346,810	8,566,036
Industrial Floor Area (sq.ft.)	9,442,083	9,537,956	14,585,212	14,585,213	16,562,837	15,046,949	15,046,949	17,915,897	18,715,572
Services Floor Area (sq.ft.)	3,721,984	4,164,336	5,205,420	5,205,420	5,749,920	5,205,420	5,749,920	5,205,420	5,749,920
Jobs	14,541	17,193	21,491	21,491	25,374	26,601	28,884	25,744	28,826
Ratio of Jobs to Housing	1.41	1.13	1.42	1.42	1.34	1.69	1.30	1.19	1.13
Source: CMCA, 2009									

Acres Designated for Urban Land Uses

The development holding capacities of each alternative is summarized in Table 8.0-1. Table 8.0-2 provides a comparison of the acreage devoted to different land use categories under each alternative.

Table 8.0-2: Comparison of Alternatives
By Land Use Category,
20- and 40-Year (Buildout) Planning Growth Boundaries Combined
(Gross Acres¹)

Land Use Category	No Project – 1992 General Plan	Least Carbon Future	Compact Development	Jobs Emphasis	PC Env. Review Plan
Mixed-Use Hillside Development ²	0	0	0	650	650
Neighborhood Village ³	0	1,520	2,141	3,644	4,568
Estate Residential	388	0	176	1,038	1027
Low Density Residential	1684	1,303	1,303	1,303	1303
Medium Density Residential	389	369	369	369	369
High Density Residential	58	58	58	58	139
Downtown Residential	203	203	203	203	203
Downtown Core	141	69	69	69	69
Regional Commercial	0	0	0	0	0
General Commercial	136	415	481	792	487
Highway Service Commercial	91	52	70	113	113
Neighborhood Commercial	0	0	0	0	0
Medical/Professional Office	6	6	6	6	6
Light Industrial	979	1,648	1,875	1,701	2124
Heavy Industrial	223	153	153	153	153
Public/Quasi-Public ⁴	375	410	422	444	443
Parks and Recreation ⁵	258	258	258	258	258
Other ⁶	36	36	79	664	533
Total Acres:	4,967	6,503	7,664	11,465	12,446

Source: CMCA, 2009

Notes:

1. Gross acres refers to the total area inclusive of streets.
2. The Mixed-Use Hillside Development land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.4.
3. The Neighborhood Village land use designation includes the range of uses and percentage of uses prescribed by Policy LU-1.3.
4. Includes 145 acres associated with the wastewater treatment plant.
5. Does not include parkland to be dedicated in areas designated Neighborhood Village and Mixed-Use Hillside Development as required by policies LU-1.3 and LU-1.4, respectively.
6. Land not classified by a land use designation. Includes canals, Interstate 5 right-of-way and other land.

Feasibility and Ability to Accomplish Project Objectives

In keeping with Section 15126.6(c) of the State CEQA Guidelines, Table 8.0-3 compares the No Project Alternative and each of the Equal-Weight Alternatives with the objectives articulated for the 2010 City of Patterson General Plan.

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
General					
Patterson's small size and character contribute to a strong sense of community shared by its residents. These characteristics should be protected and enhanced as the City's future is planned.	Yes	Yes	Yes	Yes	Yes
The City is located within proximity of the San Francisco Bay area, the Sierras and Sacramento. The General Plan should explore ways to capitalize on Patterson's strategic location to these amenities.	Yes	Yes	Yes	Yes	Yes
The City's unique history should be preserved and celebrated.	Yes	Yes	Yes	Yes	Yes
Patterson's population is diverse, and within that diversity there remains an atmosphere of friendliness and cooperation toward the common good. This is based on a number of important factors including good schools and recreational programs for youth, active service clubs and churches, and civic involvement. The General Plan should reinforce efforts to maintain this neighborliness in a true community.	Yes	Yes	Yes	Yes	Yes
Community Form and Design					
The principal entrances to Patterson should be developed with "gateways" which announce that one has entered the City. Elements of such gateway treatments can include structures, special landscaping and signs. Gateways to the downtown should also be well marked.	No	Yes	Yes	Yes	Yes

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
New residential neighborhoods should be designed to capture the best qualities of existing neighborhoods (attractive architecture and tree-lined streets) while providing a range of housing products that are affordable to all segments of the community. New neighborhoods contiguous to the older parts of town should build upon the existing grid pattern of streets and incorporate amenities such as parks, pedestrian and bicycle paths, and street trees.	No	Yes	Yes	Yes	Yes
The City's climate is generally viewed as favorable, with warm dry summers and mild winters. The General Plan should acknowledge these environmental elements and consider them in its recommended policies and programs. For example, the Plan can encourage more shade trees and wind-rows, narrower streets in new residential areas, and the provision of outdoor shelter in new commercial projects.	No	Yes	Yes	Yes	Yes
Recognizing that the General Plan will eventually become the basis for appropriate zoning to implement land use and design objectives, elements of the Plan should ensure that land uses near one another are compatible and that new buildings fit their context.	Yes	Yes	Yes	Yes	Yes
Agriculture/Natural Resources					
Patterson is surrounded by productive agricultural soils. The farming environment, especially the row crops and orchards, provide a beautiful rural context for the City that residents and visitors enjoy. Moreover, a good portion of the regional economy is related to agriculture, both directly and indirectly. Thus, protection of agricultural resources around the City and in the region is an important consideration in planning for the City's future.	Yes	Yes. Each Alternative designates more agricultural land for urban development than the current General Plan. However, the draft Policy Document recommends policies and implementation measures to help offset the permanent loss of agricultural land.			

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Agricultural activities and residences can impact one another. For example, noise, dust or spraying associated with farming could adversely affect housing; in turn, complaints from residents can sometimes impede efficient cultivation practices. Therefore, the interface or boundary between agriculture and new development must be carefully considered.	Yes	Yes	Yes	Yes	Yes
The land in and around the City contains important natural resources, including productive agricultural soils, seasonal creeks, the San Joaquin River and the foothills to the west. These sensitive resources should be protected from the effects of urban development.	Yes	Yes. Each Alternative designates more land for urban development in areas with important natural resources. However, the draft Policy Document recommends policies and implementation measures to help mitigate impacts to these resources.			
Noise, Access, & Traffic					
Patterson has a quiet ambiance which should be protected in the future.	Yes	Yes	Yes	Yes	Yes
In addition to automobile circulation, the General Plan must address other transportation modes such as a bicycle route system and additional transit opportunities to surrounding communities.	Yes	Yes	Yes	Yes	Yes
The General Plan should investigate the need for, and options for providing, an additional interchange on the I-5 freeway north of the City.	No	Yes	Yes	Yes	Yes
The General Plan should also assess the need for, and the location of, one or more expressways to by-pass the City on the north and/or south to provide an additional east-west connection to the I-5 freeway.	Yes	Yes	Yes	Yes	Yes

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Economic Development					
While it is important to think expansively about the town's future, the Plan should be practical. An important element of this practicality is the City's financial position. Therefore, the General Plan should strive toward enhancing Patterson's fiscal resources so that the public facilities and services desired by the community can be paid for.	No	Yes	Yes	Yes	Yes
Efforts undertaken by the City to revitalize the downtown should continue. It is important that the downtown cultivate a market niche that protects downtown businesses from competition with commercial development anticipated elsewhere in the City. Increased activities (such as a farmers market and other special events) and more activities in the evening (such as more restaurants, bars and a movie theater) would help solidify the image of the downtown as a desirable place to shop, dine and visit.	Yes	Yes	Yes	Yes	Yes
Encouraging a more diverse range of commercial uses in Patterson is important, especially increased retail opportunities for large-scale, single tenant retail and/or smaller scale department stores, as well as greater variety of restaurants.	No	Yes	Yes	Yes	Yes
A strong economy is important to the desirable quality of life in Patterson. Industries that provide well-paying jobs and economic stability are especially valuable. The City should consider programs to actively recruit and retain such businesses for the West Patterson Business Park and elsewhere. In addition, the General Plan should continue to provide suitable locations for heavier industrial development.	Yes	Yes	Yes	Yes	Yes

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Housing					
Affordable housing is an important issue facing Patterson residents. The General Plan should ensure that sufficient affordable housing is provided to meet the needs of all income groups. Of particular importance is the provision of suitable land for higher-density residential development and entry-level for-sale housing.	Yes	Yes. Each of the Equal-Weight Alternatives will be subject to draft policies and implementation measures which require a range of housing products in each residential expansion area.			
Public Facilities and Services					
New schools must be provided concurrently or in advance of population growth, and should be incorporated into the design of new residential neighborhoods.	Yes	Yes	Yes	Yes	Yes
The General Plan should investigate appropriate locations for an institution of higher education, such as a community college or university.	No	Yes	Yes	Yes	Yes
The General Plan should provide guidance with regard to appropriate locations for different types of public facilities. Location criteria may include the relationship of the facility to the neighborhood or area being served, good public access to the buildings or facility, the interrelationship among different public uses or functions, and the ability of public facilities to stimulate associated private development or investment.	No	Yes	Yes	Yes	Yes
Better street lighting, road maintenance, storm drainage, curbs, gutters, crosswalks, and sidewalks are needed in the older parts of town.	No	Yes	Yes	Yes	Yes

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Accessibility to public facilities is important. Accordingly, access for handicapped persons should be provided in all public facilities. In addition, the City should continue to require new development to meet accessibility standards when reviewing and approving projects and should monitor and enforce such requirements.	Yes	Yes	Yes	Yes	Yes
The provision of health care services to Patterson residents is a critical issue. The General Plan should provide guidance with respect to the appropriate location for new and/or expanded health care services, and explore strategies for funding such services with the Health Care District and other jurisdictions.	Yes	Yes	Yes	Yes	Yes
Patterson continues to be a relatively safe community. However, increased crime and vandalism are a growing concern. The General Plan should explore strategies for reducing crime and maintaining public safety.	Yes	Yes	Yes	Yes	Yes
Recreation					
The City should foster a continued sense of community by providing opportunities for social activities and interaction, through parks and recreational facilities, public open spaces and plazas, and by supporting community festivities and events.	Yes	Yes	Yes	Yes	Yes
The quality of life for all residents is critically important, but enhancing the opportunities for the community's children is especially so. The General Plan should help address the needs of Patterson's youth. Examples include coordinated City/school district planning for schools and related educational facilities; providing for adequate parks and recreational programs; encouraging a wider variety of activities for youths; planning for safe and efficient transit.	Yes	Yes	Yes	Yes	Yes

Table 8.0-3; Consistency Of Alternatives With Project Objectives

Project Objective	Consistency With Objectives				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Expanding the range of family oriented recreational facilities will be important.	Yes	Yes	Yes	Yes	Yes
The General Plan should investigate options for providing a performing arts center in Patterson.	No	Yes	Yes	Yes	Yes

Comparison of Alternatives

Overview

The following is a comparative analysis of the potential significant environmental impacts associated with each alternative, based on the topical analyses provided in Sections 5.1 through 5.15. For each topical issue, the relevant impacts are identified followed by a brief discussion of the significance of the impact under each alternative, and a comparison of the how the significance of the impact changes (if at all) for each alternative.

5.1 Land Use

Impacts 5.1-2, 5.1-5: Project and cumulative impacts relating to consistency with the Stanislaus County General Plan.

Discussion

The Stanislaus County General Plan governs land use outside the City limits within the Study Area. The applicable land use designations are shown on Figure 5.1-6 of section 5.1-Land Use/Consistency with Adopted Plans and Policies. The majority of lands surrounding the City are designated *Agriculture* which establishes agriculture as the primary use, but allows dwelling units, limited agriculturally-related commercial services, agriculturally-related light industrial uses, and other uses. Land within the City's currently adopted sphere of influence is designated as *Urban Transition*. Policies of the County General Plan require development within a City's sphere of influence to be consistent with the City's general plan.

Each Equal-Weight alternative designates land surrounding the City with designations that would allow urban development that is not allowable under the County's *Agriculture* designation. The draft Policy Document provides policies that require inclusion of expansion areas within the City's sphere of influence and annexation prior to urban development. Amendment of the City's sphere of influence and annexation require the approval of the Local Agency Formation Commission and cannot be guaranteed by the City. Prior to annexation, the land use designations of any of the Equal-Weight alternatives would remain inconsistent with those of the County General Plan. Inconsistency with the County General Plan is considered a **significant and unavoidable impact and cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

The **No Project Alternative** limits the area designated for urban development outside the City limits to the area within the City's currently adopted sphere of influence which is designated Urban Transition by the County general plan. Accordingly, the No Project Alternative is consistent with the County General Plan.

The **Lower Carbon Future Alternative** designates land for urban development outside the City limits within the City's currently adopted sphere of influence within the 20-year growth boundary. This area is designated Urban Transition by the County general plan. Thus, the 20-year growth boundary is

consistent with the County General Plan. The area designated for urban development within the 40-year growth boundary is inconsistent with the County General Plan.

The Equal-Weight Alternatives. The degree to which consistency issues arise is related to the total acreage of the various land uses proposed by each Equal-Weight Alternative that would conflict with the County General Plan. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in the acreage designated for urban development over the 20-year and 40-year timeframes as summarized in Table 8.0-2 which would be inconsistent with the County General Plan. Accordingly, general plan inconsistencies would be greatest for the Planning Commission Environmental Review Alternative (covering an area of about 12,700 acres) and least for the Compact Development Alternative (covering an area of about 7,700 acres). However in each case impacts are considered **significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.1-4, 5.1-5: Project and cumulative impacts relating to consistency with the rules and procedures of the Stanislaus Local Agency Formation Commission.

Discussion/Comparison of Alternatives

The draft Policy Document recommends policies and implementation measures that set forth a long-term (40 year) development strategy to meet the City's general plan objectives. The recommended policies and implementation measures will apply to each Equal-Weight Alternative and require the application of "Smart Growth" principles which encourage the orderly outward expansion of the City through the development of 'complete neighborhoods' that facilitate the efficient provision of public services.

The City is surrounded by prime agricultural land which comprises most of the acreage within the General Plan Study Area (see Table 5.11-5 of section 5.11-Agricultural Resources). To meet the General Plan objectives described in section 3.0, a portion of this acreage will be converted to urban use. The acreage converted will differ for each Equal-Weight Alternatives (see Table 5.11-5 of section 5.11-Agricultural Resources). Accordingly, each Equal-Weight Alternative results in a different trade-off of urban development and prime agricultural land.

The No Project Alternative. The No Project Alternative would limit future development of the City to the currently-adopted sphere of influence. LAFCo adopted the City's current sphere of influence in 2006 and determined that the sphere was consistent with LAFCo rules and procedures. Although the consideration of future annexations would result in the conversion of additional prime agricultural land the No Project Alternative is considered consistent with LAFCo policies.

The **Lower Carbon Future Alternative** designates a 20-year growth boundary that is coterminous with the currently adopted sphere of influence. In addition, this alternative applies the *Neighborhood Village* designation to areas currently designated *Low Density Residential* by the 1992 General Plan which accommodates a higher average residential density and promotes the development of complete neighborhoods. The Lower Carbon Future Alternative is consistent with LAFCo policies that favor efficient development patterns that balance urban growth with the conservation of agricultural land and other sensitive resources. Accordingly, the Lower Carbon Future Alternative is consistent with applicable LAFCo policies.

Each of the **Equal-Weight Alternatives** designates land for additional urban development outside the City's current General Plan area and adopted sphere of influence to meet the objectives of the General Plan update articulated in section 3.0-Description of Equal-Weight Project Alternatives. To meet the City's objectives for affordable housing, balancing jobs with housing, the expansion of local retail opportunities, and the provision of public facilities such as health care and schools, additional land for urban development will be needed over time.

The extent of land designated for urban development by each of the Equal-Weight Alternatives is inconsistent with LAFCo goals policies and that favor the balancing of urban development with the protection of agricultural resources and the efficient provision of public services. This inconsistency is considered a **significant and unavoidable impact**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	2	
Lower Carbon Footprint	1	
Compact Development	3	
Jobs Emphasis	3	
PC Environmental Review	3	

5.2 Population/Housing/Employment

Impacts 5.2-1: Population, housing and employment increases will result in physical effects on the environment.

Discussion

Development accommodated by the No Project, Lower Carbon Future and Equal-Weight Alternatives would lead to an increase in population, housing, and employment within the Study Area which will result in direct and indirect physical impacts to the environment (see discussion under Impact 5.2-1 and 5.2-3) that are considered **significant and unavoidable**.

Comparison of Alternatives

The **No Project Alternative** would result in a smaller urban area, less development and population than the Lower Carbon Future Alternative and each of the Equal-Weight Alternatives, and thus would result in less physical effects on the environment over time.

The **Lower Carbon Future Alternative** would accommodate a higher population within the 20-year growth boundary than the 1992 General Plan, but a lower population at buildout than any of the Equal-Weight Alternatives as summarized in Table 8.0-1. The total amount of housing and employment would be less than the Compact Development Alternative but greater than the No Project Alternative.

The **Equal-Weight Alternatives**. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in population and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger service areas than the No Project Alternative. Accordingly, physical impacts to the environment would be greatest for the Planning Commission Environmental Review Alternative (a service area of about 12,700 acres) and least for the Compact Development Alternative (a service area of about 7,700 acres).

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.2-3: Each of the Equal-Weight Alternatives will accommodate an increase in population and employment that will exceed the projections used for planning purposes by the Stanislaus Council of Governments.

Discussion

Buildout of any of the Equal-Weight Alternatives will increase housing and employment beyond the projections identified for year 2030 by the Stanislaus Council of Governments.

If each Equal-Weight Alternative is developed within the 20-year and 40-year timeframes there will be a higher number of jobs than dwelling units in the region which in turn could increase the demand for housing locally. The projected population and employment accommodated by each alternative will contribute to a population and employment increase in the region that is **cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

Table 8.0-4 compares the projected population for Patterson assumed by the 2011 Regional Transportation Plan with the populations accommodated by the No Project Alternative, the Lower Carbon Future Alternative and each of the Equal-Weight Alternatives. As Table 8.0-4 illustrates the No Project and Lower Carbon Future Alternatives are consistent with the RTP projections, while each of the Equal-Weight Alternatives will exceed these projections in the twenty year timeframe (the timeframe of the StanCOG/RTP projection).

The degree of inconsistency is greatest with the Planning Commission Environmental Review Alternative and lowest with the Compact Development Alternative. However, as discussed above, the resulting impact for each Equal-Weight Alternative is **cumulatively considerable and significant and unavoidable**.

**Table 8.0-4: Potential Increase In Projected 2030
County Population With Each Alternative**

Source	No Project – 2005 General Plan	Lower Carbon Future	Compact Development	Jobs Emphasis	PC Env Review Plan
2030 Population	33,000	35,000	46,360	47,831	64,389
StanCOG 2030 Projection for Patterson	39,067	39,067	39,067	39,067	39,067
Difference	-6,000	-4,000	+7,293	+8,764	+25,322
2030 StanCOG ¹ County Population Projection	791,332	791,332	791,332	791,332	791,332
Total:	785,332	787,332	798,625	800,096	816,654
Percent Increase Over StanCOG 2030 Projection	0	0	+0.91	+1.10	+3.10
Notes: 1. Stanislaus Council of Governments, December 2009					

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.3 Public Services

Impact 5.3-1: Project and cumulative impacts to fire protection and emergency services.

Discussion

Each of the Equal-Weight Alternatives would require additional fire-protection services and equipment to adequately serve new development. In addition, expansion of the urban area proposed under each alternative will increase response times for fire and emergency services unless additional fire stations are built and staffed. Policies and implementation measures recommended by the Draft Policy Document for impact 5.3-1 that apply to each Equal-Weight Alternative require new development to provide adequate fire and emergency services concurrently or in advance of such development. Therefore, project and cumulative fire protection impacts of the Equal-Weight Alternatives are considered **less than significant**.

Fire protection staffing requirements for each of the Equal-Weight Alternatives, the Lower Carbon Future Alternative and the No Project Alternative are summarized in Tables 8.0-5 and 8.0-6.

Table 8.0-5: Fire Department Personnel Needed to Serve The 20-Year Populations			
Alternative	20 Year Population	Total Staffing Needed To Serve 20-Year Population ¹	Additional Staffing Required ²
No Project	33,000	33	0
Lower Carbon Future	35,000	40	0
Compact Development	46,360	47	4
Jobs Emphasis	47,831	48	5
Planning Commission EIR	64,389	65	22
Notes			
1. Based on standard of 1 firefighter per 1,000 population 2. Based on the current (2010) staffing of 43 personnel			

**Table 8.0-6: Fire Department Personnel Needs To Serve The
40-Year Buildout Populations**

Alternative	40 Year Population (=buildout)	Total Staffing Needed To Serve 40 Year Population¹	Additional Staffing Required²
Lower Carbon Future	46,360	47	4
Compact Development	57,510	58	15
Jobs Emphasis	66,673	67	24
Planning Commission EIR	75,863	76	33
Notes 1. Based on standard of 1 firefighter per 1,000 population 2. Based on the current (2010) staffing of 43 personnel			

Comparison of Alternatives

The **No Project Alternative** would accommodate a population of approximately 33,196 by 2030. Fire Department staffing in 2010 is sufficient to serve a population of roughly 43,000 residents while maintaining the desired ratio of firefighters to population. The No Project Alternative would result in less service demands for fire protection and emergency services than the Equal-Weight Alternatives.

The **Lower Carbon Future Alternative** would accommodate a population of about 35,000 in 20 years and about 46,360 at buildout. Based on the desired ratio of fire fighter to population, there is currently sufficient staffing to serve the 20-year population. Serving the 40-year population would require four additional firefighters.

The **Compact Development Alternative** would accommodate a population of approximately 46,360 in 20 years and 57,510 in 40 years. Fire Department staffing in 2010 is sufficient to serve a population of roughly 43,000 residents while maintaining the desired ratio of firefighters to population. The proposed increase in population above 43,000 could further degrade fire and emergency response times. The Compact Development Alternative would result in more service demands for fire protection and emergency services than the No Project and Lower Carbon Future Alternatives but not as much as for the Jobs Emphasis and Planning Commission Environmental Review Alternative.

The **Jobs Emphasis Alternative** would accommodate a population of approximately 47,831 in 20 years and 66,673 in 40 years. Fire Department staffing in 2010 is sufficient to serve a population of roughly 43,000 residents while maintaining the desired ratio of firefighters to population. The proposed increase in population beyond 43,000 would further degrade fire and emergency response times. The Jobs Emphasis Alternative would result in more service demands for fire protection and emergency services than either the No Project, Lower Carbon Footprint, or Compact Development Alternatives but less than the Planning Commission Environmental Review Alternatives which have higher populations and larger service areas.

The Planning Commission Environmental Review Alternative would serve a population of approximately 64,389 in 20 years and 75,863 in 40 years. Fire Department staffing in 2010 is sufficient to serve a population of roughly 43,000 residents while maintaining the desired ratio of firefighters to population. The proposed increase in population beyond 43,000 would further degrade fire and emergency response times. The Planning Commission Environmental Review Alternative would result in more service demands for fire protection and emergency services than the other alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Footprint	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.3-2: Project and cumulative impacts relating to law enforcement.

Discussion

Each of the Equal-Weight Alternatives and the Lower Carbon Future Alternative would result in an expansion of the City's existing population and land area within the 20 and 40-year growth boundaries, thereby increasing the need for police officers and increasing response times unless additional stations are built. Accordingly, the Lower Carbon Future and Equal-Weight Alternatives would require additional law enforcement services and equipment to adequately serve potential populations accommodated in the 20-year and 40-year growth boundaries.

Staffing requirements to achieve the desired ratio of law enforcement personnel to population are summarized Tables 8.0-7 and 8.0-8.

**Table 8.0-7: Law Enforcement Staffing Needs
for the 20-Year Population**

Alternative	20 Year Population	Total Staffing Required¹	Additional Staffing Required²
No Project	33,000	50	29
Lower Carbon Future	35,000	53	32
Compact Development	46,360	70	49
Jobs Emphasis	47,831	72	51
Planning Commission EIR	64,389	97	76
Notes 1. Based on standard of 1.5 officer per 1,000 population 2. Based on the current (2010) staffing of 21 personnel			

**Table 8.0-8: Law Enforcement Staffing Needs for the
40-Year Population**

Alternative	40 Year Population	Total Staffing Required¹	Additional Staffing Required²
Lower Carbon Future	46,360	70	49
Compact Development	57,510	86	65
Jobs Emphasis	66,673	100	79
Planning Commission EIR	75,863	114	93
Notes: 1. Based on standard of 1.5 officer per 1,000 population 2. Based on the current (2010) staffing of 21 personnel			

The policies and implementation measures recommended under Impact 5.3-2 require law enforcement staffing and equipment adequate to meet the desired response times and ratio of officer to population concurrently or in advance of new development. For these reasons, impacts for each Equal-Weight Alternative at the project level and cumulatively are considered **less than significant**.

Comparison of Alternatives

The **No Project Alternative** would require additional law enforcement staffing between 2010 and buildout because current law enforcement staffing does not meet the desired ratio of 1.5 officers per 1,000 population. To achieve the desired ratio would require a total of 32 law enforcement officers; in 2010 there are 18 sworn officers and 3 volunteers. However, since this alternative would result in a smaller population and service area than any of the Equal-Weight Alternatives, the resulting impacts associated with new facilities and response times are less than those for the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives.

The **Lower Carbon Future Alternative** would also require additional law enforcement staffing between 2010 and buildout. To achieve the desired ratio would require a total of 49 law enforcement officers at buildout. This alternative would result in a smaller population and service area than any of the Equal-Weight Alternatives but greater than the No Project Alternative. Thus, the resulting impacts associated with new facilities and response times are less than those for the Compact Development, Jobs Emphasis or Planning Commission Environmental Review Alternatives, but greater than for the No Project Alternative.

Equal-Weight Alternatives. As shown in Tables 8.0-7 and 8.0-8, the range of staffing required for each alternative reflects the corresponding populations and service areas, with the Compact Development Alternative being the lowest and the Planning Commission Environmental Review Alternative the highest.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.3-3: Project and cumulative impacts relating to parks.

Discussion

Each of the Equal-Weight Alternatives will accommodate a significant increase in population with a corresponding increased demand for parks and recreation facilities. The 1992 General Plan and the draft Policy Document establish a goal of 5 acres of developed parkland per 1,000 residents. Policies of the Draft Policy Document require new development to dedicate its fair share of parkland and/or pay an in lieu fee. This requirement is reflected in the development standards embodied in policies LU-1.3 and LU-1.4 for areas designated Neighborhood Village and Mixed-Use Hillside Development, respectively. For all large-scale annexation areas, development plans must incorporate parkland to achieve a ratio of 5 acres per 1,000 residents. Implementation of this policy, along with the other policies and implementation measures discussed under Impact 5.3-3 ensure that sufficient parkland to achieve and maintain the desired ratio is provided by new development. For these reasons, impacts associated with the Equal-Weight Alternatives relating to parks and recreation facilities are considered **less than significant**.

Comparison of Alternatives

Tables 8.0-9 and 8.0-10 provide a summary of required parkland for the No Project, Lower Carbon Future, and Equal-Weight Alternatives.

Table 8.0-9: Park Acreage Needed To Serve the 20-Year Populations				
Alternative	20 Year Population	Total Acreage Of Developed Parkland Needed To Serve The 20 Year Population ¹	Existing Developed Park Acreage	Additional Acreage Of Developed Parkland Needed to Serve the 20 Year Population ²
No Project	33,000	166	76.83	89
Lower Carbon Future	35,000	175	76.83	98
Compact Development	46,360	232	76.83	155
Jobs Emphasis	47,831	239	76.83	162
Planning Commission Env Review	64,389	322	76.83	245
Notes 1. Based on a standard of 5 acres per 1,000 population 2. Based on the current (2010) acreage of developed parkland of 76.83 acres.				

Table 8.0-10: Park Acreage Needed to Serve the 40-Year Populations				
Alternative	40 year (buildout) Population	Total Acreage Of Developed Parkland Needed To Serve The 40 year (buildout) Population ¹	Existing Developed Park Acreage	Additional Acreage Of Developed Parkland Needed to Serve the 40 year (buildout) Population ²
Lower Carbon Future	46,360	232	76.83	155
Compact Development	57,510	288	76.83	211
Jobs Emphasis	66,673	333	76.83	256
Planning Commission Env Review	75,863	379	76.83	302
Notes 1. Based on standard of 5 acres per 1,000 population 2. Based on the current (2010) acreage of developed parkland of 76.83 acres.				

The **No Project Alternative** would result in a future population of 33,196. The City has approximately 77 acres of developed parkland in 2010 (see Table 5.3-8). To meet the City's desired ratio of parkland to population, a total of 166 developed acres of parkland would be needed for a population of 33,000 residents, or 89 acres of additional developed parks. As indicated in Table 5.3-9, there are about 90 acres of vacant land dedicated for park development which would satisfy the remaining requirement once developed. As a result, The No Project Alternative would have fewer impacts associated with meeting the City's parkland to population goal than the other alternatives.

The **Lower Carbon Future Alternative** would result in a buildout population of 46,360 at buildout. To meet the City's desired ratio of parkland to population, a total of 232 developed acres of parkland would be needed for a population of 46,000 residents, or 155 acres of additional developed parks. As indicated in Table 5.3-9 of section 5.3-Public Services and Utilities, there are about 90 acres of vacant land dedicated for park development which would satisfy the remaining requirement once developed. As a result, The Lower Carbon Future Alternative would require less parkland than the Equal Weight Alternatives, but more than the No Project Alternative.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives each accommodate a larger population than the No Project Alternative which would in turn create an additional demand for parkland, as summarized in Tables 8.0-9 and 8.0-10, above. The acreage required to meet the City's desired ratio of parks to population is lowest for the Compact Development Alternative (211 total acres in 40 years) and highest for the Planning Commission Environmental Review Alternative (302 acres). As discussed above, expansion areas designated Neighborhood Village or Mixed-Use Hillside Development will be required to incorporate park acreage at a ratio of 5 acres per 1,000 residents of a project.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.3-4: Project and cumulative impacts relating to school facilities.

Discussion

The City and Study Area lie entirely within the boundaries of the Patterson Joint Unified School District (PJUSD). Each of the Equal-Weight Alternatives would accommodate an increased population which would in turn result in additional school-aged children and a corresponding demand for school facilities. Table 8.0-11 provides an estimate of school-aged children generated by the No Project Alternative and the Equal-Weight Alternatives for the 20-year and 40-year growth boundaries.

Comparison of Alternatives

As shown in Table 8.0-11, student populations would increase substantially under each alternative over the next 40 years and the projected increase in enrollment would exceed the capacity of existing school facilities. The Draft Policy Document recommends policies and implementation measures which would help minimize impacts related to school facilities (see policies listed under Impact 5.3-4). In addition, the payment of statutory fees is considered to provide full and complete school facility mitigation. Therefore, by continuing to require the payment of statutory fees, school impacts would be considered **less than significant**.

The No Project Alternative would accommodate the lowest buildout population, and would therefore generate fewer school-aged children over the next twenty years than any of the Equal-Weight Alternatives.

The Lower Carbon Future Alternative would generate additional school-aged children as summarized in Table 8.0-11. The number of additional students would be roughly comparable to the No Project Alternative for the first 20 years, and less than for each of the Equal-Weight Alternatives at buildout.

Equal-Weight Alternatives. As shown in Table 8.0-11, the range of additional school-aged children generated by each Equal-Weight Alternative reflects the corresponding populations for each planning timeframe, with the Compact Development Alternative being the lowest and the Planning Commission Environmental Review Alternative the highest.

Table 8.0-11: Projection of Additional School-Aged Children

Alternative	School-Aged Children By Grade			
	K-5	6 to 8	9 to 12	Total
Current Enrollment	2,244	1,277	1,708	5,229
Students Added Over 20 Years				
No Project	1,491	619	693	2,803
Lower Carbon Future	2,554	861	933	4,348
Compact Development	3,193	1,076	1,166	5,435
Jobs Emphasis	3,390	1,130	1,224	5,744
Planning Commission Env Review Plan	5,471	1,857	2,015	9,343
Students Added Over 40 Years				
No Project	Unknown			
Lower Carbon Future	3,193	1,076	1,166	5,435
Compact Development	4,525	1,566	4,525	10,616
Jobs Emphasis	5,620	1,971	5,620	13,212
Planning Commission Env Review Plan	6,820	2,379	6,820	16,019
Total Enrollment At Buildout ¹				
Lower Carbon Future	5,437	2,353	2,874	10,664
Compact Development	6,769	2,843	6,233	15,845
Jobs Emphasis	7,864	3,248	7,328	18,441
Planning Commission Env Review Plan	9,064	3,656	8,528	21,248
Sources: Source: Jack Shreder and Associates, Draft School Facilities Needs Analysis for the Patterson Joint Unified School District, April, 2009 CMCA, 2009 Notes: 1. Current enrollment plus students added over 40 years.				

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.3-5: Project and cumulative impacts relating to health care.

Discussion

The Del Puerto Health Care District (DPHCD) provides emergency ambulance service, urgent/primary care to west Stanislaus County, as well as community education and outreach services, CPR and first aid classes, and paramedic training. The demand for health care services would increase as development occurs in the Study Area over the next 40 years under any of the alternatives including the No project Alternative. The Draft Policy Document recommends policies and implementation measures discussed under Impact 5.3-5 to reduce the potential impacts relating to health care services to a **less than significant** level. However, the size, number and location of additional health care facilities that may be needed to serve the expanded service populations as well as regional growth are unknown in 2010. Accordingly, the physical impacts associated with the construction of these facilities are considered **cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

The **No Project Alternative** would increase the City's population to 33,196 over the next twenty years (see Table 8.0-1). The No Project Alternative is consistent with the DPHCD's 2006 Development Impact Fee justification study which assumed the City of Patterson would accommodate approximately 33,000 residents by the year 2020. The 2006 fee study did not anticipate the additional population accommodated by the Equal-Weight Alternatives, or development associated with the West Park Specific Plan Project. The West Park Specific Plan could generate as many as 37,000 jobs over the next 30 years. Project impacts associated with the No Project Alternative are considered **less than significant**; however, the No Project Alternative along with development of the West Park Specific Plan Project would exceed the DPHCD's service population estimates. In addition, construction-related impacts associated with the construction of health care facilities are considered **cumulatively considerable and significant and unavoidable**.

The **Lower Carbon Future Alternative** would increase the City's population to about 35,000 over the next twenty years which would slightly exceed the estimate for City population used by the Health Care

District. Project impacts associated with the Lower Carbon Future Alternative are considered **significant**; however, the Lower Carbon Future Alternative along with development of the West Park Specific Plan Project would exceed the DPHCD's service population estimates. And lastly, construction related impacts would be **cumulatively considerable and significant and unavoidable**.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in population over the 20-year and 40-year timeframes as summarized in Table 8.0-1. The 2006 DPHCD fee study assumed the City of Patterson would accommodate approximately 33,000 residents by the year 2020 and did not anticipate the additional population accommodated by the Equal-Weight Alternatives, or development associated with the West Park Specific Plan Project. The West Park Specific Plan could generate as many as 37,000 jobs over the next 30 years. The potential impacts associated with each Equal-Weight Alternative would be greatest for the Planning Commission Environmental Review Alternative (with a 20-year population of 64,000 and a 40-year population of 76,000) and least under the Compact Development Alternative (20-year population of 46,000 and 40-year 57,500).

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.3-6, 5.3-7: Project and cumulative impacts relating to solid waste disposal.

Discussion

Implementation of any of the Equal-Weight Alternatives would result in a substantial increase in solid waste generation within the City and the General Plan Study Area over the 20 year and 40-year timeframes which in turn will adversely impact the capacity of landfills serving the City.

Comparison of Alternatives

Tables 8.0-12 and 8.0-13 provide a comparison of solid waste generation for each of the Equal-Weight Alternatives and the No Project Alternative for the 20-year and 40-year timeframes. Assuming the same

per capita rate of solid waste generation experienced in 2007 for the future population of the City under the largest alternative (i.e., the Planning Commission Environmental Review Plan), the total additional solid waste disposed of in the Fink Road Landfill between 2007 and 2030 would be about 4 million tons, which is less than the remaining estimated capacity of 6 million tons. Thus, the Fink Road Landfill appears to have adequate capacity to accommodate Patterson's contribution from each of the Equal-Weight Alternatives. The Draft Policy Document recommends policies and implementation measures discussed under Impact 5.3-6 that will help reduce project impacts relating to solid waste to a **less than significant level**. However, when regional growth is considered, the capacity of the landfill would be reached by 2039. As a result, cumulative solid waste disposal impacts are considered **cumulatively considerable and significant and unavoidable** for each Equal-Weight Alternative.

The No Project Alternative is estimated to generate approximately 26,663 tons per year of solid waste over the next twenty years. As shown on table 8.0-12 the Fink Road Landfill appears to have adequate capacity to accommodate the anticipated solid waste generated. Since The No Project Alternative is expected to generate less solid waste than the Equal-Weight Alternatives, The No Project Alternative would result in less of an impact to the Fink Road Landfill.

The Lower Carbon Future Alternative would generate additional solid waste in excess of that associated with the No Project Alternative, but less than that associated with each of the Equal-Weight Alternatives.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in the generation of solid waste, as shown in Tables 8.0-12 and 8.0-13 over the 20-year and 40-year timeframes respectively. The potential impacts associated with each Equal-Weight Alternative would be greatest for the Planning Commission Environmental Review Alternative (44,879 tons per year in the 20-year timeframe, 53,119 tons per year in the 40-year timeframe) and least under the Compact Development Alternative (36,181 tons per year in the 20-year timeframe, 45,028 tons per year in the 40-year timeframe).

**Table 8.0-12: Projected Solid Waste Generation --
20-Year Growth Boundary
(Tons Per Year)**

Land Use Category		Tons Per Year By Alternative				
		No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	PC Env Review Plan
Existing	Residential ¹	15,110	15,110	15,110	15,110	15,110
	Commercial/Industrial ¹	8,714	8,714	8,714	8,714	8,714
New Development	Residential ¹	8,878	14,310	17,887	18,934	30,719
	Commercial/Industrial ¹	23,661	31,308	39,135	50,514	48,604
Total		56,363	69,442	80,846	93,271	103,148
Less 61% Diversion ²		34,381	42,357	49,316	56,896	62,920
Sub-Total:		21,982	27,085	31,530	36,376	40,228
Wastewater Sludge ³		4,620	3,696	4,620	4,620	4,620
Brine/Concentrated Salts ⁴		31	31	31	31	31
Total Added to Landfill (tons/year)		26,663	30,812	36,181	41,027	44,879
Total Added to Landfill (cu. yds/yr) ⁵		42,612	51,353	60,281	68,357	77,777

Notes and Sources:

1. Solid waste generation factors: Commercial/Industrial = 12.2 pounds/day/employee; Residential = 3.9 pounds/day/person. Source: California Integrated Waste Management Board, <http://www.calrecycle.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=616&JUR=Patterson> accessed March 2010
2. 61% diversion rate is based on regional rate, reported in <http://www.calrecycle.ca.gov/LGCentral/Tools/mars/DrmcMain.asp?VW=In>
3. Assumes 18.48 tons per day in 2030 and that air drying results in 30 percent solids.
4. The reader is referred to the discussion under impact 5.3-4 of Section 5.4 – Water Supply.
5. Assumes 1,200 pounds (0.6 tons) per cubic yard. By this factor, existing solid waste disposal to landfill is 9,425 cubic yards per year.

**Table 8.0-13: Projected Solid Waste Generation -- 40-Year Growth Boundary
(Tons Per Year)**

Land Use Category		Tons Per Year By Alternative			
		Lower Carbon Future	Compact Development	Jobs Emphasis	PC Env Review Plan
Existing	Residential ¹	15,110	15,110	15,110	15,110
	Commercial/Industrial ¹	8,714	8,714	8,714	8,714
New Development	Residential ¹	17,887	25,823	32,345	38,885
	Commercial/Industrial ¹	39,135	47,780	55,456	55,466
Total at Projected 40-Year Development		80,846	97,427	111,625	118,176
Less 61% Diversion ²		49,316	59,431	68,091	72,087
Sub-Total:		31,530	37,997	43,534	46,088
Wastewater Sludge ³		4,620	7,000	7,000	7,000
Brine/Concentrated Salts ⁴		31	31	31	31
Total Added to Landfill (tons/year)		36,181	45,028	50,565	53,119
Total Added to Landfill (cu. yds/yr) ⁵		60,281	75,026	84,254	88,511
Notes and Sources: 1. Solid waste generation factors: Commercial/Industrial = 12.2 pounds/day/employee; Residential = 3.9 pounds/day/person. Source: California Integrated Waste Management Board, http://www.calrecycle.ca.gov/Profiles/Juris/JurProfile2.asp?RG=C&JURID=616&JUR=Patterson accessed March 2010 2. 61% diversion rate is based on regional rate, reported in http://www.calrecycle.ca.gov/LGCentral/Tools/mars/DrmcMain.asp?VW=In 3. Assumes 28 tons per day in 2050 and that air drying results in 30 percent solids. 4. The reader is referred to the discussion under impact 5.3-4 of Section 5.4 – Water Supply. 5. Assumes 1,200 pounds (0.6 tons) per cubic yard. By this factor, existing solid waste disposal to landfill is 9,425 cubic yards per year.					

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.3-11 Development accommodated by the Compact Development, Jobs Emphasis or PC Environmental Review Plan Alternatives will require the construction of additional fire and police stations, parks, health care facilities, schools, and electricity, natural gas and communications lines. Construction of new and expanded public facilities could result in significant environmental impacts. This is considered a potentially significant impact.

Development accommodated by the Equal-Weight Alternatives will require the construction of the following additional public facilities:

- Depending on the alternative chosen, up to three additional stations would be needed (in addition to the station planned for The Villages of Patterson project) to provide better geographic coverage and improve response times (Kinnear, March 2010);
- Additional police substations;
- Up to 302 acres of additional parkland;
- School facilities to accommodate up to 21,248 additional school-aged children;
- Health care facilities;
- The installation of electrical, natural gas transmission lines and substations, and communications lines;

Potential impacts associated with construction-related activities include:

- Air quality and Climate Change: emission of pollutants and greenhouse gases associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources are discussed in Section 5.10.

- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use, Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.
- Traffic: construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- Water quality: earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- Geology and Soils: construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9- Geology and Soils.

The recommended policies and implementation measures identified for impact 5.3-11 will help reduce construction-related impacts relating to the construction of public facilities. In addition, the construction of future public facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of new or expanded facilities. Nonetheless, the ability to mitigate certain potential impacts is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new public facilities and utilities that may be needed to serve the expanded service population remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives as well as for the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.4 Water Supply

Impact 5.4-1, 5.4-6: Project and cumulative impacts related to water supply.

Discussion

The City of Patterson has historically satisfied all of its demand for water from the underlying groundwater basin. The City operates nine (9) wells with a total capacity of 9,600 gallons per minute, with a projected production of about 7,500 AFY. The wells currently (2010) produce a combined 5,000 AFY. However, the local groundwater basin has production limitations, and for purposes of water supply planning it is estimated that an average of 8,300 acre feet/year of groundwater is available for City use which (according to the City's 2006 Urban Water Management Plan) is sufficient to serve a population of about 35,000 residents. Accordingly, water demand associated with a population greater than 35,000 will require a secondary source of water.

Policies and implementation measures recommended under impact 5.4-1 set forth a program for ensuring a reliable secondary source of water is available to serve development beyond 35,000 residents. However, there are several uncertainties and associated adverse environmental impacts associated with this program and for these reasons, project and cumulative impacts associated with all three Equal Weight Alternatives are considered **significant and unavoidable** and **cumulatively considerable** and **significant and unavoidable** for both the 20-year and 40-year timeframes.

Comparison of Alternatives

Table 8.0-14 compares future water demand associated with the No Project, Lower Carbon Future and Equal-Weight Alternatives for the 20-year and 40-year timeframes. As Table 8.0-14 shows, the Lower Carbon Future and Equal-Weight Alternatives will accommodate residential, non-residential and institutional uses that will significantly increase the demand for water beyond the City's current supply. In addition, water supply production and distribution infrastructure will be needed which will include the installation of wells, water pipelines, water storage tanks, pump facilities, and treatment and distribution facilities.

The **No Project Alternative** would result in future demand that falls within the supplies currently available to the City as documented by the City's 2006 Urban Water Management Plan. The No Project Alternative would have a **less than significant impact**.

The **Lower Carbon Future Alternative** would accommodate a 20-year population of about 35,000 residents. As stated above, the City's Urban Water Management Plan suggests that the City's current supply of groundwater is sufficient to serve a population of about 35,000. Therefore, water supply impacts associated with the 20-year growth boundary are considered **less than significant**. At buildout, the Lower Carbon Future Alternative would require about 15,000 acre-feet of water (potable and non-potable) which is less than the Compact Development Alternative but greater than the No Project Alternative.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in population and non-residential development over the 20-year and 40-year timeframes with a corresponding increase in the demand for water. As shown in Table 8.0-14, the potential increase in demand would be greatest for the Planning Commission Environmental Review Alternative (with a 20-year water demand of 22,200 AFY and a 40-year demand of 27,311 acre feet) and least under the Compact Development Alternative (20-year demand 15,587 AFY and 40-year demand of 17,973). However in each case project and cumulative impacts are considered **significant and unavoidable** and **cumulatively considerable and significant and unavoidable**.

Table 8.0-14: Comparison of Estimated Water Demands By
Alternative and Growth Boundary/Planning Timeframe
With Existing (2010) City Water Supplies
(acre-feet per year)

Alternative	Growth Boundary/Timeframe	Potable Demand	Non-Potable Demand	Total Demand	Existing Supply ¹	Supply Minus Total Demand
No Project	20 years	8,100	--	8,100	8,300	+200
Lower Carbon Future	20 Years	5,395	2,905	8,300	8,300	0
	40 Years	10,179	5,408	15,587	8,300	-7,287
Compact Development	20-Year	10,179	5,408	15,587	8,300	-7,287
	40-Year	11,055	6,919	17,973	8,300	-9,673
Jobs Emphasis	20-Year	11,060	6,771	17,831	8,300	-9,531
	40-Year	13,738	10,967	24,705	8,300	-16,405
Planning Commission Env Review	20-Year	12,646	9,592	22,237	8,300	-13,937
	40-Year	14,604	12,707	27,311	8,300	-19,011

Source: The H2O Group, 2010, Table 2-8.

Notes:

1. Estimated quantity of groundwater resources available to the City by 2006 Urban Water Management Plan.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.4-2. Supplying water to serve the Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year growth boundaries will require the extension of water supply conveyance infrastructure into previously un-served areas. This impact is considered potentially significant.

The City does not currently supply water to areas outside the City limits; land within the Study Area is largely in agricultural use and is supplied by the Patterson Irrigation District, the West Stanislaus Irrigation District, and the Del Puerto Water District, or from on-site wells. Supplying water to expansion areas will require the construction of water supply infrastructure that includes water lines, wells, storage tanks, booster pumps, pressure reducing valves, one or more water treatment plants, and a groundwater recharge basin. Construction of water supply infrastructure would be subject to project-specific environmental review. Potential construction-related impacts include:

- Air quality: emissions associated with construction equipment (discussed in Section 5.7).
- Biological resources: construction of facilities on undeveloped areas has the potential to disrupt habitat for special status species and other species as well. Potential impacts to biological resources can be found in Section 5.10.
- Important Farmland: construction activities may result in the permanent conversion of important farmland to an urban use. Potential impacts to farmland are discussed in section 5.11 Agricultural Resources.
- Cultural resources: construction activities may result in the discovery of archaeological objects within the study area. Additionally, buried or otherwise known historic resources might also be encountered during soil-disturbing operations. Cultural resources are discussed in Section 5.15.
- Hazardous Materials: Construction activities may also include the use, transport and storage of hazardous materials. The reader is referred to section 5.12 Hazards and Hazardous Materials.
- Noise: Construction activities may include the use of heavy machinery and equipment which generates temporary noise. Such equipment includes (but it not limited to) backhoes, trucks, pavement cutters, jackhammers and soil compactors. Construction noise impacts and mitigation are discussed in section 5.8.
- Traffic: construction activities may require road closures or lesser impediments. Traffic rerouting or slowing may be necessary during installation activities; this issue is discussed in section 5.6.
- Water quality: earthwork, though temporary, is a common source of erosion and sedimentation. It is also a potential source of pollution from improper use of construction machinery. These issues are discussed in sections 5.9 and 5.13, Geology and Hydrology, respectively.
- Geology and Soils: construction activities will result in the disturbance of soils with the potential for erosion. Potential impacts relating to geology and soils can be found in section 5.9-Geology and Soils.

The water distribution facilities to be constructed would be consistent with the City's existing water distribution infrastructure. Accordingly, implementation of the additional distribution system would complement, rather than adversely impact, the City's existing water supply system.

A precise location for a water treatment facility (or facilities) has not been identified at this time. However, it is expected to be constructed on agricultural land within the Study Area that currently provides some measure of biological resource value. Impacts associated the permanent loss of agricultural land are discussed under impact 5.11-1 of section 5.11 Agricultural Resources. Impacts associated with

biological resources are discussed in Section 5.10 Biological Resources. Therefore the construction of water supply infrastructure is considered a **potentially significant impact**.

The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of water supply infrastructure. In addition, the construction of water facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of water supply facilities. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new water supply infrastructure will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives and for the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.4-3: Cones of depression may adversely impact surrounding wells.

Discussion

Increased groundwater production will be required to serve development accommodated by the No Project and Equal-Weight Alternatives could result in one or more “cones of depression” which could adversely impact other wells in the vicinity of the City’s well fields. Mitigation recommended under impact 5.3-3 will reduce potential impacts to a **less than significant** level.

Comparison of Alternatives

The **No Project Alternative** would rely on wells currently installed to produce groundwater required for buildout. These wells are currently in place and were the subject of previous environmental review and were found to have a **less than significant** impact on surrounding wells. Therefore, impacts to other wells associated with the No Project Alternative are considered **less than significant**.

The **Lower Carbon Future Alternative** and **Equal-Weight Alternatives** will require a secondary source of water beyond the City’s current supplies. The water supply strategy recommended to provide a secondary source of water will rely on an increased production of groundwater from well fields installed within the Study Area.

Use of the upper aquifer could interfere with the existing wells used by individual groundwater users in areas near the City. The likelihood of interfering with other groundwater uses is reduced substantially by several factors. Although public records of privately-owned well locations and water uses are unavailable, informal research has revealed few, if any, surrounding groundwater users near the City’s well field who are drawing water from the deep, confined aquifer used by the City. Rather, local agricultural and domestic groundwater users rely on the shallow, unconfined aquifer, which reduces their well installation and operation costs. The City of Patterson prohibits the use of private wells for domestic or irrigation use. Thus, privately owned well locations are outside of the City limits. When sites are annexed into the City, they are required to connect to the City water system, and the private wells must be abandoned.

Therefore, if the City uses water from the upper aquifer, it is not anticipated to have a measurable impact on private use of that aquifer. It is not known, however, that no existing wells would be affected by a new City well pumping from the confined (lower) aquifer. For these reasons, the policies and implementation measures are recommended under impact 5.3-3 to address potential impacts to surrounding wells.

Since the amount of groundwater needed to serve the Lower Carbon Future and Equal-Weight Alternatives varies with the populations served, the potential for impacts to surrounding wells would be greatest with the Planning Commission Environmental Review Alternative and lowest with the Lower Carbon Future Alternative. It is not known, however, that no existing wells would be affected by new City wells pumping from both the unconfined (upper) and the confined (lower) aquifer. Because this is unknown potential impacts to other wells is considered **significant and unavoidable** for the Lower Carbon Future Alternative and the Equal-Weight Alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.4-4: Treatment of groundwater and surface water will require the disposal of brine as a by-product of water treatment.

Discussion

Regardless of the Equal-Weight Alternative chosen, the water supply program recommended for the City will involve the increased pumping of groundwater. The primary goal of groundwater treatment is the removal of salinity which consists of several positive and negative ions that naturally occur in local groundwater including calcium, magnesium, sulfides, bicarbonates, iron, manganese, chlorides, and sodium. Although together these minerals are called “total dissolved solids”, or TDS.

The treatment of groundwater or surface water would require construction of a centralized water treatment facility providing desalination of the water by Reverse Osmosis, membrane treatment, ion-exchange, or lime softening. Water to be treated would need to be piped from wellheads to this facility. The quantity of water treated for each Equal Weight Alternative varies considerably. However, the greatest amount would be associated with the Planning Commission Environmental Review Alternative in which as much as 11,200 AFY of water may be treated by 2050. Concentrated brine with this alternative could be as high as 1.5 million gallons per day (1,680 AF) per year.

The brine produced by groundwater treatment would require disposal. Brine processing can be accomplished through drying beds, mechanical dewatering, and/or blending with other wastewaters. Use of evaporative drying beds and lagoons alone would require many acres of land (350 acres - 400 acres). In lieu of an ocean discharge, membrane reject is often treated to reduce the volume of brine residuals, or in combination with other processing solutions to minimize land use, operating expenses, and to meet discharge requirements.

Evaporation would require the City to purchase new property and construct evaporation ponds with impervious linings to prevent percolation of the brine into the shallow aquifer. After evaporation, salts would need to be collected and transported to an appropriate solid-waste disposal facility. If evaporated, the 1,680 AF annually of brine would produce approximately 31 tons of salts per year that would require

proper disposal. As discussed under impact 5.3-6 of Section 5.3 – Public Services and Utilities, the additional 31 tons per year will have an **insignificant impact** on the capacity of the landfill.

Comparison of Alternatives

The **No Project Alternative** would eventually require the treatment of groundwater resources as the supply of potable water meeting safe drinking water standards is exceeded. However, the amount of brine generated would be less than the 31 tons per year associated with the Equal-Weight Alternatives.

The **Lower Carbon Future** and **Equal-Weight Alternatives** would produce brine on an annual basis that would range from a high of about 31 tons per year with the Planning Commission Environmental Review Alternative. As discussed under impact 5.3-6, this is not expected to have a significant impact on landfill capacity. Thus the impacts associated with brine disposal for the Lower Carbon Future, Compact Development and Jobs Emphasis Alternatives would be **less than significant**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.4-5: Cumulative reduction of water available for agricultural operations.

Implementation of the water supply program recommended under impact 5.4-1 would result in the use of irrigation water for urban uses that includes landscape irrigation and/or groundwater recharge. The potential amount of irrigation water diverted from agricultural use to urban is shown on table 8.0-15. Implementation of any of the Equal-Weight Alternatives will result in a net decrease in the amount of irrigation water available for agricultural uses delivered by the Central Valley Project via the Patterson Irrigation District, the West Stanislaus Irrigation District and the Del Puerto Water District. This impact is considered **cumulatively considerable and significant and unavoidable**.

Table 8.0 -15: Potential Loss of Water For Agricultural Purposes From Water Purveyors Serving the General Plan Study Area, And Corresponding Acreage

Water Purveyor	Acres Within the General Plan Study Area	Acre Feet of Water Supplies Allocated To These Areas²
Del Puerto Water District	2,761	7,536
West Stanislaus Irrigation District	1,807	9,589
Patterson Irrigation District	3,195	15,975
Total:	7,763	33,100
Source: Stanislaus Local Agency Formation Commission and CMCA, 2010		
Notes:		
1. Includes properties not within the service area of water purveyor as well as freeway right-of-way.		
2. See Table 5.4-7.		

Comparison of Alternatives

The **No Project Alternative** does not require a secondary source of water supply beyond existing groundwater resources. Therefore, the No Project Alternative would have no impact on water provided to agricultural operations by the surrounding water purveyors.

The amount of irrigation water potentially diverted from agricultural operations would vary with the **Lower Carbon Future** and **Equal-Weight Alternative** and would be greatest with the Planning Commission Environmental Review Alternative and the least with the Lower Carbon Future Alternative. However, in each case, the diversion of water would be considered **cumulatively considerable** and **significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.5 Wastewater

Impact 5.5-1: Project impacts relating to the construction of wastewater collection and disposal infrastructure and an increase in wastewater treatment capacity.

Discussion

Each of the Equal-Weight Alternatives would substantially increase wastewater flows from development within the 20 and 40-year growth boundaries and require additional collection, treatment and disposal infrastructure and treatment capacity to accommodate anticipated demand. Tables 8.0-16 and 8.0-17 summarize projected average annual wastewater flows and peak flows associated with the No Project Alternative and each of the Equal-Weight Alternatives. The projected flows are based on the future population and non-residential acreage associated with each alternative.

The draft Policy Document recommends policies and implementation measures that require adequate wastewater collection, treatment and disposal capacity to be available prior to new development and the upgrade and/or extension of wastewater infrastructure with new development (see policies and implementation measures under Impact 5.5-1). As a result, impacts relating to wastewater collection, treatment and disposal are considered **less than significant**.

Comparison of Alternatives

Wastewater Collection

Each of the Equal-Weight Alternatives designates additional land for urban development for both the 20-year and 40-year growth boundaries in areas that are currently not served by wastewater collection systems. Moreover, the existing trunk sewer system does not have remaining capacity sufficient to accommodate the additional flows associated with the Equal-Weight Alternatives for either the 20-year growth boundary or the 40-year growth boundary.

Treatment Plant Capacity

The wastewater treatment plant has a current (2010) rated capacity of 2.25 mgd and a permitted capacity of 3.5 mgd. Improvements currently under design will increase the rated capacity to about 3.5 mgd. As shown in Table 8.0-16, the Lower Carbon Future and Equal-Weight Alternatives will generate wastewater flows that exceed the rated capacity of the wastewater treatment plant. The shortfall in capacity for the 40-year timeframe (2050) ranges from about 2.3 mgd for the Lower Carbon Future Alternative, to 4.75 mgd for the PC Environmental Review Alternative.

Table 8.0-16: Average Annual Wastewater Flow Projections (Million Gallons Per Day)					
Alternative	2010	2030	2050	Rated Capacity of WWTP In 2010	Difference
Existing	1.40	--	--		
No Project		3.22	--	2.25	
Lower Carbon Future		3.39	4.55	2.25	2.3
Compact Development	--	4.55 ¹	5.75 ²	2.25	3.5
Jobs Emphasis	--	4.87 ¹	6.40 ²	2.25	4.15
Planning Commission Environmental Review Alternative	--	5.87 ¹	7.00 ²	2.25	4.75
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010 1. Includes an allowance of 0.5 mgd from the Diablo Grande project. 2. Includes an allowance of 0.75 mgd from the Diablo Grande project.					

Table 8.0-17: Peak Wastewater Flow Projections (Million Gallons Per Day)		
Alternative	2010	2050
Existing	4.02	--
Lower Carbon Future	--	10.08 ¹
Compact Development	--	14.4 ¹
Jobs Emphasis	--	16.6 ¹
Planning Commission Environmental Review Alternative	--	17.9 ¹
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010 1. Includes an allowance of 1.8 mgd from the Diablo Grande project.		

Wastewater Disposal Capacity

Within the treatment plant area there are approximately 100 acres of percolation ponds used for effluent disposal. However, the current pond area will eventually be reduced to about 85 acres as the plant is expanded and new facilities are constructed. Based on the current average percolation rate (about 0.05 inches per hour) the City can expect to dispose of approximately 2.9 mgd of effluent with the remaining pond acreage. This percolation capacity is significantly less than what would be generated by the Lower Carbon Future Alternative and each of the Equal-Weight Alternatives, as summarized in Table 8.0-18. The additional percolation area needed by 2050 ranges from 45 additional acres for the Lower Carbon Future Alternative, to about 115 acres for the Planning Commission Environmental Review Alternative.

Table 8.0-18: Percolation Pond Area and Corresponding Wastewater Flows				
Alternative	Average Annual Wastewater Flow in 2050 (mgd)	Total Pond Area Required (acres)	Existing Pond Area (acres)	Additional Pond Area Required (acres)
No Project	3.09	88	85	3
Lower Carbon Future	4.55	130	85	45
Compact Development	5.75	165	85	80
Jobs Emphasis	6.40	182	85	97
PC Environmental Review	7.00	200	85	115
Source: Lee and Ro, City of Patterson Wastewater Master Plan, May 2010, page 26				

The **No Project Alternative** would result in a smaller urban area and population than any of the Equal-Weight Alternatives and would generate less wastewater to be collected, treated and disposed. Construction related impacts associated with infrastructure improvements and treatment capacity would be less than for any of the Equal-Weight Alternatives. Under the No Project Alternative, the physical improvements to the wastewater treatment plant would be confined to the existing treatment plant footprint and would result in lower construction-related impacts. The acreage needed for wastewater disposal percolation ponds would be the least for the No Project Alternative. Therefore, this alternative would not require the conversion of additional farmland and habitat for the purpose of constructing disposal ponds.

The **Lower Carbon Future and Equal-Weight Alternatives**. Improvements to the wastewater treatment plant necessary to increase treatment capacity for both the 20-year and 40-year timeframes would be confined to the existing treatment plant site for each alternative. Construction related impacts associated with wastewater collection infrastructure would be greatest for the Planning Commission Environmental Review alternative which covers the largest physical area, followed by the Jobs Emphasis, Compact Development Alternatives and Lower Carbon Future Alternative.

With respect to wastewater disposal, the additional acreage required for disposal ponds to accommodate each Equal-Weight Alternative varies with the population served, as shown in Table 8.0-18. The Planning

Commission Environmental Review Alternative would require the most acreage, followed by the Jobs Emphasis, Compact Development and Lower Carbon Future alternatives. Therefore, secondary impacts associated with the conversion of productive farmland and habitat associated with that acreage would be greatest for the Planning Commission Environmental Review Alternative, followed by the Jobs Emphasis, Compact Development and Lower Carbon Future alternatives. Impacts to biological resources and agricultural resources and are discussed in sections 5.10 and 5.11, respectively.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower Carbon Future		2
Compact Development		3
Jobs Emphasis		4
PC Environmental Review		5

Impact 5.5-2. The Compact Development, Jobs Emphasis or PC Environmental review Alternatives in both the 20-year and 40-year growth boundaries will require the extension of wastewater collection infrastructure into previously un-served areas. This impact is considered potentially significant.

Each of the Equal-Weight Alternatives designates additional land for urban development for both the 20-year and 40-year growth boundaries in areas that are currently not served by wastewater collection systems. Moreover, the existing trunk sewer system does not have remaining capacity sufficient to accommodate the additional flows associated with the Equal-Weight Alternatives for either the 20-year growth boundary or the 40-year growth boundary. This impact is considered **potentially significant**. The recommended policies and implementation measures identified above will help reduce construction-related impacts relating to the construction of wastewater infrastructure. In addition, the construction of new or expanded wastewater facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of wastewater facilities. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new wastewater infrastructure will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives and for the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.5-3: Project impacts – increased treatment capacity will require an amendment of the City’s Wastewater Discharge Permit.

As noted under Impact 5.5-1, each Equal-Weight Alternative will generate wastewater flows that will exceed the City’s wastewater treatment plant capacity. In addition, wastewater flows associated with the Lower carbon Future and Equal-Weight Alternatives will exceed the treatment plant’s permit capacity. As a result, the Lower Carbon Future and Equal-Weight Alternatives will require an amendment to the City’s current National Pollution Discharge Elimination System (NPDES) permit. The Central Valley Regional Water Quality Control Board, a state agency, issues NPDES permits for the City’s wastewater treatment plant. Since obtaining a revised permit is subject to another agency’s action which the City cannot control, waste discharge volume impacts for both the 20-year and 40-year timeframes are considered a **significant and unavoidable impact** for each alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.6 Transportation

Impacts 5.6-1, 5.6-3, 5.6-5: Project and cumulative impacts – increased traffic will adversely impact intersection and roadway levels of service in the 20 year timeframe.

Discussion

Residential, commercial, industrial and public development accommodated by each of the Equal-Weight Alternatives will result in greater traffic volumes which in turn will impact the level of service (LOS) of City roadways and intersections over the next twenty years. With the policies, implementation measures, and mitigation measures discussed under Impacts 5.6-1, 5.6-3, and 5.6-5, project related traffic volume and LOS impacts on City streets and intersections within the 20-year growth boundary would be less than significant. However, although the City has adopted a development impact fee ordinance and has included the partial cost of the recommended improvements in currently-collected fees on new development, none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, these impacts are considered **significant and unavoidable**.

Comparison of Alternatives

Table 8.0-20 compares the No Project and Equal Weight Alternatives by considering the following attributes:

- The total number of AM and PM peak hour trips generated;
- The number of intersections expected to operate below LOS D by 2030 without further mitigation;
- The projected year in which the Zacharias/I-5 interchange is needed to maintain an acceptable level of service;

- The year in which West Main St and the bridge over the San Joaquin River would require widening to four lanes; and
- Improvements necessary to achieve and maintain LOS “D” at the intersections studied;

Table 8.0-20: Comparison of Alternatives And Improvements Needed To Maintain LOS “D” Or Better

Intersection Improvements	No Project	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Total AM and PM Peak Hour Trips	30,102	54,533	76,166	70,436
Number of Intersections Expected To Operate Below LOS D By 2030	0	18	18	18
Year In Which Zacharias/I-5 Interchange is Needed	Not Needed	2024	2020	2022
Year In Which West Main St/Bridge Over San Joaquin River Would Require Widening to Four Lanes	Not Needed	2030	2022	2025
Recommended Improvements:				
Intersection No. 1 -- Sperry Ave/I-5 SB Off Ramps. Signalize intersection. Southbound: add left turn lane. Westbound: add two left turn lanes.	X	X	X	X
Intersection No. 2 -- Sperry Ave/I-5 NB On-Ramps. Signalize intersection. Eastbound: add left turn and through lane. Westbound: add a right turn lane. Northbound: add right turn lane.	X	X	X	X
Intersection No. 3: Rogers Road/Sperry Avenue – assumes Rogers Road is extended south beyond Sperry Avenue and expands the intersection. Southbound add one through lane and a second right-turn lane; westbound add a second through lane and two left-turn lanes; northbound add a left-turn lane, a through/right lane and a right-turn lane; eastbound add additional left-turn and through lanes and a new right-turn lane.	X	X	X	X
Intersection No. 4: Baldwin Road/Sperry Avenue – add a second westbound through lane and an exclusive eastbound right-turn lane.	X	X	X	X
Intersection No. 6: American Eagle Drive/Sperry Avenue – add exclusive right and left-turn lanes southbound; add an exclusive right-turn lane northbound; and add a second left-turn lane and an exclusive right-turn lane eastbound.	X	X	X	X
Intersection No. 7 -- Sperry Ave/Las Palmas Ave. Signalize intersection.	X	X	X	X
Intersection No. 8 -- Sperry Ave/Ward Ave. Eastbound: add one left turn lane. Northbound: add a left turn lane. Southbound: add a right turn lane.	X	X	X	X
Intersection No. 9 -- Sperry Avenue/S. Del Puerto Avenue. Add eastbound and westbound left turn lanes.	X	X	X	X
Intersection No. 10 -- Sperry Ave/SR 33 Signalize intersection. Eastbound: add left turn and right turn lanes. Westbound: add a left turn lane. Northbound: add two left turn lanes. Southbound: add a left turn lane; restripe the shared through and left turn lane as a shared through and right turn lane.	X	X	X	X
Intersection No. 11 – East Las Palmas Ave/SR 33. Add additional westbound left turn lane.	--	--	X	X
Intersection No. 13 -- Ward Ave/SR 33. Signalize intersection. Add a northbound left turn lane. Add one	X	X	X	X

**Table 8.0-20: Comparison of Alternatives And Improvements Needed To
Maintain LOS “D” Or Better**

Intersection Improvements	No Project	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
through lane to the northbound and southbound.				
Intersection No. 14 -- Zacharias Rd/SR 33. It is assumed that this intersection will be realigned as a part of the proposed Northern Bypass project. Signalize intersection. Northbound: add two left turn lanes. Eastbound: add a left turn lane.	X	X	X	X
Intersection No. 15 -- Baldwin Rd/SR 33. Signalize intersection and add left-turn lane in the northbound. And add a southbound right-turn lane.	X	X	X	X
Intersection No. 16 -- Rogers Rd/SR 33. Signalize intersection. Add eastbound and northbound left turn lanes. Southbound: add a right turn lane.	X	X	X	X
Intersection No. 17 -- SR 33/Eucalyptus Ave. Southbound: add a left turn and through lane. Northbound: add a through lane	X	X	X	X
Intersection No. 19 -- Walnut Ave/M Street/SR 33 Signalize intersection. Eastbound, Westbound: add a left turn lane and restripe shared through and left turn lane as a shared through and right turn lane.	X	X	X	X
Intersection No. 20 -- E. Las Palmas Ave/Sycamore Ave Signalize intersection. Add left-turn lane to southbound and northbound approaches. Add northbound and southbound through lane.	X	X	X	X
Intersection No. 21 Poplar/E. Las Palmas/West Main – signalize the intersection; southbound, convert right-turn lane to a right/left turn lane at this “T” intersection; westbound add an exclusive right-turn lane, convert the existing right/through lane to a through lane and add a second through lane; eastbound add a second through lane.	X	X	X	X
Intersection No. 22: Carpenter Road/West Main – add a traffic signal; southbound add exclusive left- and right-turn lanes; westbound add exclusive left-turn and through lanes and retain a through/right lane; northbound add a left-turn lane; and eastbound add a through lane and two left-turn lanes.	X	X	X	X
Intersection No. 23: Crows Landing Road/West Main Street – add a traffic signal; southbound add exclusive left-turn lane; westbound add an exclusive left-turn lane and a through lane; northbound add an exclusive left-turn lane and convert the through/left lane to a through/right lane; and eastbound add two exclusive left-turn lanes, convert the through/left lane to a through lane, and add a through/right lane.	X	X	X	X

The **No Project Alternative** would result in approximately 4,336 new dwelling units and roughly 9.4 million square feet of additional non-residential floor space serving a population of about 33,196. The No Project Alternative will accommodate the lowest population and the least amount of additional development than any of the Equal-Weight Alternatives. As a result, this alternative is expected to generate the lowest traffic volumes and resulting level of service impacts to streets and intersections serving the Study Area than the Equal-Weight Alternatives. Continued implementation of traffic improvements identified for buildout of the 1992 General Plan as part of the Villages of Patterson project (TJKM Transportation Consultants, The Villages of Patterson EIR Traffic Study, July, 2006) will result in LOS D or better on roadways and intersections serving the 1992 General Plan area. An interchange at Zacharias Road and Interstate 5 will not be needed to maintain an acceptable level of service on intersections and roadways serving the Study Area. However, it may be needed to meet regional traffic objectives. In addition, West Main Street over the San Joaquin River will not need to be widened to 4 lanes to accommodate traffic associated with buildout of the 1992 General Plan, but may be necessary to meet regional traffic circulation objectives.

The **Lower Carbon Future Alternative** would generate more AM and PM peak hour vehicle trips than the No Project Alternative but would result in comparable traffic to the No Project Alternative by 2030 by virtue of the comparable population (35,000 residents). At buildout, traffic generated by the Lower Carbon Future Alternative would be comparable to that resulting from the 20-year timeframe of the Compact Development Alternative.

The **Compact Development Alternative** will accommodate about 15,100 total dwelling units and 25.8 million square feet of non-residential floor space within the 20-year growth boundary. As shown in Table 8.0-20 the Compact Development Alternative is expected to generate a total of 54,533 AM and PM peak hour trips by the year 2030. Under the Compact Development Alternative, 18 of the 23 intersections studied are expected to operate at an unacceptable LOS E/F (see Tables 5.6-9 and 5.6-10, and Appendix 5.6) by the year 2030. Installation of the roadway and intersection improvements recommended under impact 5.6-1 will result in all of the roadway segments and intersections studied to operate at LOS D or above in the year 2030. A new freeway interchange at Zacharias Road and Interstate 5 will be required by about 2024. In addition, West Main Street over the San Joaquin River will need to be widened to 4 lanes by 2030.

The **Jobs Emphasis Alternative** will accommodate about 15,700 dwelling units and 30.6 million square feet of additional non-residential floor space within the 20-year growth boundary. As shown in Table 8.0-20 the Jobs Emphasis Alternative will generate a total of 76,166 AM and PM peak trips by the year 2030, which is the highest of the three Equal-Weight Alternatives. Under the Jobs Emphasis Alternative 18 of the 23 intersections studied will operate at LOS E/F by 2030 (see Tables 5.6-14 and 5.6-15, and Appendix 5.6). Installation of the roadway and intersection improvements recommended under impact 5.6-3 will result in all of the roadway segments and intersections studied to operate at LOS D or above in the year 2030. A new freeway interchange at Zacharias Road and Interstate 5 will be required by about 2020. In addition, West Main Street over the San Joaquin River will need to be widened to 4 lanes by 2022.

The **Planning Commission Environmental Review Alternative** would accommodate about 21,687 total dwelling units and 29.4 million square feet of non-residential floor space within the 20-year growth boundary. As shown in Table 8.0-20, the Planning Commission Environmental Review Alternative will generate a total of 70,436 AM and PM peak trips are estimated by the year 2030 which is the second highest among the Equal-Weight Alternatives. Levels of service analysis results indicated that 18 of the 23 study intersections will operate at LOS E/F (see Tables 5.6-19 and 5.6-20, and Appendix 5.6). Installation of the roadway and intersection improvements recommended under impact 5.6-5 will result

in all of the roadway segments and intersections studied to operate at LOS D or above in the year 2030. A new freeway interchange at Zacharias Road and Interstate 5 will be required by about 2022. In addition, West Main Street over the San Joaquin River will need to be widened to 4 lanes by 2025.

As stated above, the recommended roadway and intersection improvements are not fully funded in 2010. Therefore, traffic impacts associated with the Equal-Weight Alternatives and the Lower Carbon Future Alternative are considered **cumulatively considerable and significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower Carbon Future		2
Compact Development		3
Jobs Emphasis		5
PC Environmental Review		4

Impacts 5.6-2, 5.6-4, 5.6-6: Project and cumulative traffic will adversely impact roadway levels of service in the 40 year (buildout) timeframe.

Discussion

Residential, commercial, industrial and public development accommodated by each of the Equal-Weight Alternatives within the 40-year growth boundaries will result in greater traffic volumes which in turn will impact the level of service (LOS) of City roadways. The traffic model used by the Stanislaus Council of Governments and the City to project traffic impacts on area roadways and intersections uses a 20-year timeframe. Thus, a precise quantification of impacts to the level of service on roadways and intersections serving the Study Area beyond 20-years is less accurate but has been quantified for roadway segments by applying assumptions for the growth in background traffic. The policies, implementation measures, and recommended mitigation measures discussed under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6, will help mitigate potential impacts to roadway segments for the 2030 to 2050 timeframe. However, the precise nature of the growth in background traffic associated with development in the region between 2030 and 2050 is unknown. In addition, roadway and intersection improvements to roadways outside the City's jurisdiction may be required and cannot be guaranteed.

For these reasons, traffic impacts associated with the Compact Development Alternative for the years 2030 to 2050 are **significant and unavoidable**.

Comparison of Alternatives

The **No Project Alternative** will result in smaller number of future dwelling units, population, and non-residential floor area than any of the Equal-Weight Alternatives over the 20 to 40 year (buildout) timeframe. As a result, this alternative would be expected to result in less traffic volumes and level of service impacts on Study Area roadways than the other alternatives for the 20-year to 40-year timeframe.

The **Lower Carbon Future Alternative** would generate more AM and PM peak hour vehicle trips than the No Project Alternative but would result in comparable traffic by 2030 by virtue of a comparable level of development and population (35,000 residents). At buildout, traffic generated by the Lower Carbon Future Alternative would be comparable to that resulting from the 20-year timeframe of the Compact Development Alternative.

The **Equal-Weight Alternatives**. Levels of service for roadway segments within the Study Area for the 40-year timeframe are summarized in Tables 5.6-12, 5.6-17, and 5.6-22 for the Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives, respectively. The analysis suggests that for the 40-year timeframe one roadway segment, Rogers Road south of Zacharias Road, is likely to operate below LOS D for all three Equal-Weight Alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.6-7: Project impacts relating to truck traffic.

Discussion

Development of properties designated for additional commercial and industrial uses will generate additional truck trips for the delivery of goods within the 20 and 40-year growth boundaries. The percentage of average daily traffic associated with trucks varies by location. Regional development, such as the West Park project, has the potential to significantly increase the amount of truck traffic on regional roadways, including roadways through the City. The type and quantity of businesses that may ultimately occupy the West Park project is unknown at present, but can be inferred to be industrial businesses similar in nature to distribution centers. Thus, the total number of future truck trips in the

region would likely be higher than those shown in Table 8.0-21. The increase in truck trips could adversely impact residential neighborhoods if truck routes are not designated and enforced.

Recommended truck routes are shown on Figure 5.6-19 as additional mitigation recommended for impact 5.6-7. Implementation of the recommended policies and implementation measures for impact 5.6-7 would reduce potential impacts to less than significant. However, although the City has adopted a development impact fee ordinance and has included the partial cost of improvements recommended under impact 5.6-1, 5.6-3 and 5.6-5 in currently-collected fees on new development, none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. In addition, increased truck traffic could adversely increase the effects upon existing neighborhoods. Therefore, the impacts are considered **significant and unavoidable**.

Table 8.0-21: Estimate of Future PM Peak Hour Truck Trips,
By Alternative

Alternative	20-Year PM Peak Hour Trips	20 Year PM Peak Hour Truck Trips ¹	40-Year PM Peak Hour Trips	40 Year PM Peak Hour Truck trips ¹
No Project	18,227	1,822	--	--
Lower Carbon Future	26,056	2,605	32,571	3,257
Compact Development	32,571	3,257	10,300	4,287
Jobs Emphasis	49,255	4,925	13,400	6,265
PC Env Review	41,485	4,148	11,900	5,338
Source: TJKM, 2010				
Notes:				
1. Assumes 10 percent of peak hour trips are associated with trucks and that the percentage remains constant through 2050.				

Comparison of Alternatives

As shown in Table 8.0-21, **The No Project Alternative** could result in as many as 1,800 truck trips during the PM peak hour, which is considerably less than that expected for the Equal-Weight Alternatives. The current general plan designates areas for industrial development, such the West Patterson Business Park, in proximity to the I-5 freeway with roadways designed for truck traffic that generally avoids residential neighborhoods. Commercial properties are served by arterials, such as Sperry Avenue, Ward Avenue, Las Palmas and State Route 33. The 1992 General Plan does not designate truck routes; truck traffic generated by development of remaining non-residential properties would continue to use these and roadways.

The **Lower Carbon Future Alternative** would result in more truck traffic than the No Project Alternative but less than the Equal-Weight Alternatives in both the 20-year and 40-year timeframes.

The **Equal-Weight Alternatives**. As shown in table 8.0-21, the Jobs Emphasis Alternative would result in the highest number of PM peak hour truck trips of the three Equal-Weight Alternatives, and the Compact Development Alternative the least. Implementation of the recommended policies and implementation measures recommended for impact 5.6-7 would reduce potential truck traffic impacts to less than significant for each of the Equal-Weight Alternatives for both the 20-year and 40-year timeframes. However none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Lastly, increased truck traffic could adversely increase the effects upon existing neighborhoods. Therefore, the impacts are considered **cumulatively considerable and significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impacts 5.6-8, 5.6-16: Project and cumulative traffic could adversely impact the level of service of roadways under the jurisdiction of other agencies.

Discussion

Traffic generated by each of the No Project, Lower Carbon Future and Equal-Weight Alternatives will result in roadways and intersections under the jurisdiction of Stanislaus County and Caltrans to operate at Level of Service D or below if mitigation is not implemented (see Table 8.0-22). Since improvements to roadways under the jurisdiction of other agencies cannot be guaranteed by the City, the City of Patterson cannot guarantee implementation and/or the timing of the mitigation measures for these roadways. Therefore, potential impacts to roadways and intersections under the State and County's jurisdictions would remain **significant and unavoidable** at the project level and **cumulatively considerable and significant** at the cumulative level.

Comparison of Alternatives

As shown on Table 8.0-22, the **No Project Alternative** would have the same impact to intersections under the jurisdiction of other agencies as each of the Equal-Weight Alternatives. For roadway segments the No Project Alternative would have slightly less impact to roadways under the jurisdiction of other agencies for State Rout 33 north of Zacharias Road. In all other instances impacts to roadway segments would be the same as the Equal-Weight Alternatives.

The **Lower Carbon Future Alternative** would result in a comparable level of impacts to roadways of surrounding jurisdictions as the Compact Development Alternative.

As shown in Table 8.0-22, each of the **Equal Weight Alternatives** would have the same adverse impact to intersections and roadways.

Table 8.0-22: Level of Service¹ On Roadways and Intersections of Other Jurisdictions

Roadway Segment/Intersection	Jurisdiction	PM Peak Hour LOS Under the No Project Alternative	PM Peak Hour LOS Under the Compact Development Alternative		PM Peak Hour LOS Under the Jobs Emphasis Alternative		PM Peak Hour LOS Under the PC Environmental Review Alternative	
		2030	2030	2050	2030	2050	2030	2050
Intersections								
1. Sperry Ave/I-5 SB Off-Ramps	Caltrans	F	F	--	F	--	F	--
2. Sperry Ave/I-5 NB On-Ramps	Caltrans	F	F	--	F	--	F	--
10. Sperry Ave/SR-33	Caltrans	F	F	--	F	--	F	--
14. Zacharias Rd/SR-33	Caltrans	F	F	--	F	--	F	--
17. SR-33/Eucalyptus	Caltrans	F	F	--	F	--	F	--
18. Olive Avenue/SR-33	Caltrans	F	F	--	F	--	F	--
19. Walnut Ave/M Street/SR 33	Caltrans	F	F	--	F	--	F	--
20. Las Palmas Ave./Sycamore Ave	Stanislaus County	F	F	--	F	--	F	--
21. Poplar Ave/Las Palmas Ave	Stanislaus County	F	F	--	F	--	F	--
22. Carpenter Rd/W Main Ave	Stanislaus County	F	F	--	F	--	F	--
23. Crows Landing Rd/W Main Ave	Stanislaus County	F	F	--	F	--	F	--
Roadway Segments								
Rogers Rd, s/o Zacharias Rd	Stanislaus County	D	D	D	D	D	D	D
SR-33, n/o Zacharias Rd.	Caltrans	C	D	D	D	D	D	D
SR-33, s/o Walnut Ave.	Caltrans	C	C	C	C	C	D	C
SR-33, s/o Sperry Ave.	Caltrans	D	D	D	D	D	D	D
Source: TJKM, 2010								
Notes:								
1. Level of service before mitigation.								
2. Stanislaus County has adopted LOS C as the desired level of service.								

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	2	
Jobs Emphasis	2	
PC Environmental Review	2	

Impacts 5.6-9, 5.6-17: Project and cumulative impacts to Interstate 5.

Discussion

Traffic generated by each of the No Project, Lower Carbon Future and Equal-Weight Alternatives will adversely impact Interstate 5. Improvements to State highways, including Interstate 5, fall under the jurisdiction of Caltrans. Therefore, the City of Patterson cannot guarantee implementation and/or the timing of improvements necessary to achieve and maintain the desired level of service as identified under impact 5.6-9 of section 5.6-Transportation. Therefore, impacts to Interstate 5 would remain **significant and unavoidable** at the project level and **cumulatively considerable and significant and unavoidable** at the cumulative level.

Table 8.0-23: 2030 Freeway Levels of Service –
No Project Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	4,292	39.1	E
	<i>Mitigated</i>	3	4,292	21.7	C
L	I-5, s/o Sperry Ave.	2	4,259	38.5	E
	<i>Mitigated</i>	3	4,259	21.5	C
M	I-5, s/o Fink Rd.	2	3,684	32.8	D
	<i>Mitigated</i>	3	3,684	19.8	C
Source: Highway Capacity 2000- Basic Freeway Segments Analysis					

Table 8.0-24: 2030 and 2050 Freeway Levels of Service –
Compact Development Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour			Lanes	2050 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS		Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	3,570	28.3	D	3	5,653	30.6	D
	<i>Mitigated</i>	3	3,570	18.0	B	4	5,653	21.4	C
L	I-5, s/o Sperry Ave.	2	4,333	40.0	E	3	6,695	43.0	E
	<i>Mitigated</i>	3	4,333	21.9	C	4	6,695	26.0	C
M	I-5, s/o Fink Rd.	2	3,606	31.7	D	3	5,981	38.3	E
	<i>Mitigated</i>	3	3,606	19.4	C	4	5,981	24.5	C

Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Table 8.0-25: 2030 and 2050 Freeway Levels of Service –
Jobs Emphasis Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour			Lanes	2050 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS		Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	4,167	36.7	E	3	6,797	44.7	E
	<i>Mitigated</i>	3	4,167	21.0	C	4	6,797	26.5	D
L	I-5, s/o Sperry Ave.	2	4,498	43.9	E	3	7,042	-	F
	<i>Mitigated</i>	3	4,498	22.8	C	4	7,042	27.7	D
M	I-5, s/o Fink Rd.	2	3,820	35.1	E	3	6,272	42.9	E
	<i>Mitigated</i>	3	3,820	20.5	C	4	6,272	25.9	C

Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Table 8.0-26: 2030 and 2050 Freeway Levels of Service –
PC Environmental Review Alternative

No.	Freeway Segment	Lanes	2030 Peak Hour			Lanes	2050 Peak Hour		
			Volume	Density (pc / mi / ln)	LOS		Volume	Density (pc / mi / ln)	LOS
K	I-5, n/o Sperry Ave.	2	3,576	28.3	D	3	5,529	29.6	D
	<i>Mitigated</i>	3	3,576	18.0	B	4	5,529	20.9	C
L	I-5, s/o Sperry Ave.	2	4,381	41.0	E	3	6,687	42.9	E
	<i>Mitigated</i>	3	4,381	22.2	C	4	6,687	25.9	C
M	I-5, s/o Fink Rd.	2	3,632	32.1	D	3	5,970	38.2	E
	<i>Mitigated</i>	3	3,632	19.5	C	4	5,970	24.4	C

Source: Highway Capacity 2000- Basic Freeway Segments Analysis

Comparison of Alternatives

As shown in Table 8.0-23, the **No Project Alternative** will result in LOS E to the north and south of the Sperry Avenue interchange by 2030 before the recommended mitigation is applied. Under the No Project Alternative, an additional north and southbound lane would result in an LOS C.

The **Lower Carbon Future Alternative** would result in slightly less traffic impacts to Interstate 5 than the Compact Development Alternative.

The **Compact Development Alternative** would result LOS E on I-5 south of Sperry Avenue in the 2030 timeframe before mitigation (Table 8.0-2), and LOS E on I-5 south of Sperry Avenue and south of Fink Road in the 2050 timeframe.

The **Jobs Emphasis Alternative** would have the greatest impact in Interstate 5 of the Equal-Weight Alternatives, with LOS E on each of the segments studied in the 2030 timeframe before mitigation (Table 8.0-25) and LOS E on I-5 south of Sperry Avenue and south of Fink Road, and LOS F south of Sperry Avenue.

The **Planning Commission Environmental Review Alternative** would result LOS E on I-5 south of Sperry Avenue in the 2030 timeframe before mitigation (Table 8.0-26), and LOS E on I-5 south of Sperry Avenue and south of Fink Road in the 2050 timeframe which is the same impact as the Compact Development Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.6-10, 5.6-19 Increase the demand for transit facilities.

Each of the Equal-Weight Alternatives will significantly increase the population and number of jobs in the City through 2050. Together, the increases in population and employment accommodated by each alternative will result in an increased demand for transit services in the City. Impacts associated with the construction of transit facilities are similar to those associated with public and quasi-public facilities which are addressed in the topical sections of this EIR.

Policies recommended by the draft Policy Document are aimed at facilitating the expanded use of alternate forms of transportation, including public transit. Moreover, the development strategy envisioned by the Land Use element emphasizes the creation of “complete” neighborhoods in which the day-to-day needs of residents can be provided within a short walk or bike ride. Lastly, each of the Equal-Weight Alternatives designates additional land for employment opportunities in Patterson as a means of improving the ratio of jobs to housing, which in turn is expected to reduce area-wide home-to-work motor vehicle trips and facilitate the use of transit for these trips. With the policies and implementation measures set forth above, the impacts to transit would be less than significant.

However, because some of the improvements are dependent upon funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing. Therefore, the impacts are **cumulatively considerable and significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.6-11, 5.6-19 Increased demand for pedestrian facilities.

Each of the Equal-Weight Alternatives will accommodate a significant increase in population, employment and retail development over current levels which in turn will result in an overall increase in the generation of pedestrian trips in the City. Although a precise measure of current levels of pedestrian activity is not available, pedestrian trips may be expected to grow proportionally with population and employment. The construction of additional pedestrian facilities has the potential to result in adverse physical impacts. In addition, new or expanded pedestrian facilities may require construction in roadways outside the jurisdiction of the City. For these reasons, this impact is considered **potentially significant impact**.

Together the recommended policies, implementation measures and provisions of the Patterson Municipal Code could reduce potential impacts to pedestrian systems from each of the three Equal-Weight Alternatives to a less than significant level. However, new or expanded pedestrian facilities may require construction in roadways outside the jurisdiction of the City. Because some pedestrian improvements necessary to serve the Equal-Weight Alternatives are dependent upon the funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing. Therefore, the impacts are considered **cumulatively considerable and significant and unavoidable** for the equal-Weight Alternatives and the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.6-12, 5.6-19 Increased demand for bicycle facilities.

As discussed in section 5.2 Housing and Population, each of the Equal-Weight Alternatives will accommodate a significant increase in population, employment and retail development over current levels. As with transit and pedestrian systems, bicycle ridership is expected to increase proportionately to population, employment and shopping and is a desired outcome for each of the Equal-Weight Alternatives. The construction of additional bicycle facilities has the potential to result in adverse physical impacts. In addition, new or expanded bicycle facilities may require construction in roadways outside the jurisdiction of the City. For these reasons, this impact is considered **potentially significant**.

The development strategy embodied by policies of the Land Use Element encourage the development of “complete” neighborhoods in which more of the day-to-day needs of residents is provided within a short walk or bicycle ride. Thus, an increase in bicycle traffic is an expected and encouraged outcome of all three Equal-Weight Alternatives. In addition, each of the Equal-Weight Alternatives designates land for additional employment-generating land uses which in turn is expected to help reduce motor vehicle use for home-work trips and facilitate the use of alternate modes of travel such as bicycles. Together the recommended policies, implementation measures and provisions of the Patterson Municipal Code could reduce potential impacts to bicycle systems from each of the three Equal-Weight Alternatives to a less than significant level. However, new or expanded bicycle facilities may require construction in roadways outside the jurisdiction of the City. In addition, because some bicycle improvements necessary to serve the Equal-Weight Alternatives are dependent upon the funding and approvals from other jurisdictions, the City of Patterson cannot control their implementation or timing.

For these reasons impacts to bicycle facilities is considered cumulatively considerable and **significant and unavoidable** for each of the Equal-Weight Alternatives and for the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.6-14 Increased potential for traffic hazards.

As demonstrated by the summary of trip generation described above for impacts 5.6-1 through 5.6-6, urban development accommodated by each of the Equal-Weight Alternatives will significantly increase the volume of traffic on City streets and intersections. As a result, the number and frequency of traffic related accidents and the overall hazard associated with motor vehicle and bicycle traffic could increase. This is considered a **potentially significant impact**.

Roadway and intersection improvements recommended as mitigation for each of the Equal-Weight Alternatives as described under impacts 5.6-1, 5.6-2, 5.6-3, 5.6-4, 5.6-5 and 5.6-6 will ensure roadways and intersections will operate at a safe and efficient level of service. However none of these improvements are fully funded in 2010 and future funding cannot be guaranteed. In addition, several of the intersections and roadways on the list of improvements fall under the jurisdiction of other agencies such as the State and County. Improvements to these roadways would require approvals and/or funding which cannot be guaranteed by the City. Therefore, the impacts are considered **cumulatively considerable and significant and unavoidable** for each of the Equal-Weight Alternatives and for the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.6-15 Roadway construction.

As described under impacts 5.6-1 through 5.6-7, roadway and intersection improvements will be needed to achieve and maintain an acceptable level of service on roadways and intersections serving the Study Area. Land within the Study Area is largely in agricultural use. Roadway improvements to serve expansion areas will require the construction of new or expanded roadways and intersections and bridges. Construction of road improvements would be subject to project-specific environmental review.

The precise location of new roadways and intersections has not been identified at this time, but would generally reflect the Circulation Plan shown on Figure 5.6-14 of section 5.6-Transportation. These improvements are expected to be constructed in part on agricultural land within the Study Area that currently provides some measure of biological resource value. Impacts associated the permanent loss of agricultural land are discussed under impact 5.11-1 of section 5.11 Agricultural Resources. Impacts associated with biological resources are discussed in Section 5.10 Biological Resources. Therefore the construction of road improvements is considered a **potentially significant impact**.

The policies and implementation measures recommended under impact 5.6-15 will help reduce construction-related impacts relating to the construction of water supply infrastructure. In addition, the construction of water facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of roadways. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new road improvements will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **cumulatively considerable** and **significant and unavoidable** for each of the Equal-Weight Alternatives and for the Lower Carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

5.7 Air Quality and Climate Change

Impact 5.7-2: Project air quality impacts associated with sensitive receptors.

Discussion

Buildout of the land designated for urban development by the Equal-Weight Alternatives within the 20 and 40-year growth boundaries could result in new commercial and industrial uses that produce objectionable odors or expose sensitive receptors to toxic air contaminants. In addition the increased number of residences and other sensitive land uses associated with each of the Equal-Weight Alternatives may result in new sensitive land uses located near existing sources of toxic air contaminants. Elevated concentrations of these toxic air contaminants may significantly increase human health risk. Implementation of the policies, implementation measures and recommended mitigation measures discussed under Impact 5.7-2 would prevent significant human health risks associated with toxic air contaminants and impacts to sensitive receptors. For each of the Equal-Weight Alternatives this impact is considered **potentially significant**.

Comparison of Alternatives

The No Project Alternative would result in an urban area of 4,967 acres. New construction would be required to comply with current air quality regulations and would be subject to mitigation measures required in accordance with project-specific environmental review. Because the No Project Alternative accommodates less overall development in terms of acreage, building floor area and population, the potential for significant impacts to sensitive receptors is considered less than for the Equal-Weight Alternatives. Additional acreage for urban development remains in proximity to the railroad tracks (a potential source of toxic emissions from rail operations) but less than that designated by the Equal-Weight Alternatives. Land designated for urban development extends to the east to Sycamore Avenue and provides the greatest separation between new development and the wastewater treatment plant.

The **Lower Carbon Future Alternative** would result in an urban area of about 6,500 acres. The Lower Carbon Future Alternative accommodates less overall development in terms of acreage, building floor area and population than any of the Equal-Weight Alternatives. Therefore, the potential for significant impacts to sensitive receptors is considered less than for the Equal-Weight Alternatives but greater than for the No Project Alternative. Additional acreage for urban development remains in proximity to the railroad tracks (a potential source of toxic emissions from rail operations) but less than that designated by the Equal-Weight Alternatives. Land designated for urban development extends to the east to Sycamore Avenue and provides the greatest separation between new development and the wastewater treatment plant.

The **Compact Development Alternative** would result in an urban area of 7,664 acres in forty years. Since The Compact Development Alternative would result in more urban land area and thereby more new development than the No Project Alternative, the potential for impacts relating to odors and exposure to toxic air contaminants would be expected to be greater under the Compact Development Alternative than the No Project Alternative. The Compact Development Alternative designates less acreage for urban development in proximity to the railroad tracks than the Jobs Emphasis or Planning Commission Environmental Review Alternatives, and the land designated for urban development to the east of the City extends to Sycamore Avenue which provides the same measure of separation between new development and the wastewater treatment plant.

The **Jobs Emphasis Alternative** would result in an urban area of 11,465 acres in forty years. Additional land designated for residential development extends along the railroad tracks north and south of the existing General Plan area and to the east about mid-way between Sycamore Avenue and Elm Avenue. Although this alternative provides less separation between new development and the treatment plant than the No Project or Compact Development Alternatives, impacts associated with odors are expected to be less than significant.

The **Planning Commission Environmental Review Alternative** would result in an urban area of 12,446 acres in forty years. This alternative designates additional land for industrial development north of Zacharias Avenue in proximity of the railroad tracks and surrounding the new high school site. Additional land for residential development is designated south of the existing General Plan area and along the railroad tracks. To the east, land is designated for urban development to Elm Avenue which is 0.5 miles west of the wastewater treatment plant. Although this alternative provides the least separation between new development and the treatment plant than the No Project, Compact Development and Jobs Emphasis Alternatives, impacts associated with odors are expected to be less than significant.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower Carbon Future		2
Compact Development		3
Jobs Emphasis		4
PC Environmental Review		5

Impact 5.7-3: Project impacts relating to the emission of ozone precursors.

Discussion

Operational emissions associated with future development accommodated by the No Project and Equal-Weight Alternatives of ROG and NO_x would exceed the 10 ton per year threshold for both the 20-year and 40-year timeframes. Although the policies, implementation measures, and recommended additional mitigation measures discussed under Impact 5.7-3 will help reduce these emissions, operational emissions will remain **significant and unavoidable** for the No Project Alternative as well as each of the Equal-Weight Alternatives.

Comparison of Alternatives

Operational impacts associated with each of the Equal-Weight Alternatives were modeled using the Air Resources Board Model URBEMIS 7. The development of land uses accommodated by the project would generate motor vehicle and area source emissions as summarized in Tables 8.0-27 and 8.0-28.

The **No Project Alternative** would result in a smaller urban area and population than any of the other alternatives. As shown in Table 8.0-27, this Alternative is expected to generate less vehicle and area source emissions in the next 20 years than any of the Equal-Weight Alternatives.

The **Lower Carbon Future Alternative** would generate more ozone precursor emissions than the No Project Alternative but less than the Compact Development Alternative.

The **Compact Development Alternative** would result in a larger urban area, greater population and higher number of motor vehicle trips than the No Project Alternative, and as a result, would generate more ozone precursor emissions. As shown in Tables 8.0-27 and 8.0-28, the Compact Development Alternative would generate a lower quantity of emissions than either the Jobs Emphasis or Planning Commission Environmental Review Alternatives the 20 and 40-year timeframes.

The **Jobs Emphasis Alternative** would result in a larger urban area and population than the 1992 General Plan and The Compact Development Alternative. As noted section 5.6 Transportation this alternative would result in the highest levels of peak hour trip generation within the 20 and 40 year (buildout) growth boundaries, and as shown in Tables 8.0-27 and 8.0-28 would generate the highest quantity of ozone precursor emissions than the other alternatives.

The **Planning Commission Environmental Review Alternative**. As noted in Tables 8.0-27 and 8.0-28, the Planning Commission Environmental Review Alternative would generate a lower number of PM peak hour trips in the 20-year and 40-year timeframe than the Jobs Emphasis Alternative and the emission of ozone precursors would be less than the Jobs Emphasis Alternative but greater than the Compact Development and No Project Alternatives.

Table 8.0-27: Year 2030 Mitigated Operational Emissions Summary (tons/year)					
Source	ROG	NOx	CO	PM10	PM2.5
No Project Alternative					
Vehicles	98.14	94.17	933.71	191.69	40.48
Area sources	73.07	15.89	262.69	40.27	38.77
Total	171.21	110.06	1196.39	231.96	79.25
Compact Development Alternative					
Vehicles	175.0	167.4	1662.0	340.9	72.0
Area sources	147.2	32.0	531.4	81.6	78.6
Total	322.2	199.4	2193.4	422.5	150.6
Jobs Emphasis Alternative					
Vehicles	267.3	261.5	2579.1	531.8	112.3
Area sources	147.3	38.5	450.1	67.2	64.7
Total	414.6	300.0	3029.2	599.0	177.0
Planning Commission Environmental Review Alternative					
Vehicles	226.1	214.6	2136.7	437.2	92.4
Area sources	225.6	46.2	749.1	114.2	110.0
Total	451.7	260.8	2885.8	551.4	202.4
Source: Padre Associates, 2010 and URBEMIS 7					

**Table 8.0-28: Year 2050 Operational Emissions Summary
(tons/year)**

Source	ROG	NOx	CO	PM10	PM2.5
Compact Development Alternative					
Vehicles	55.75	60.30	576.13	138.93	29.88
Area sources	57.08	14.47	208.47	31.48	30.30
Total	112.83	74.77	784.60	170.41	60.18
Jobs Emphasis Alternative					
Vehicles	75.84	82.58	788.58	190.18	40.91
Area sources	94.42	23.99	370.86	56.31	54.2
Total	170.26	106.57	1159.44	246.49	95.11
Planning Commission Environmental Review Alternative					
Vehicles	63.82	69.8	664.58	160.67	34.55
Area sources	60.25	16.45	235.69	35.54	34.21
Total	124.07	86.25	900.27	196.21	68.76
Source: CMCA, 2010 and URBEMIS 7					
Notes:					
1. For comparison with 2010 SJVUAPCD thresholds of significance, only. Estimate applies emission factors for 2010 which may not be representative of emissions associated with motor vehicles and appliances in 2050.					

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impacts 5.7-4, 5.7-8: Project and cumulative impacts relating to consistency with the Extreme Ozone Attainment Demonstration Plan

Discussion

Development accommodated by any of the Equal-Weight Alternatives together with cumulative development in the San Joaquin Valley Air Basin, would contribute to cumulative air quality impacts and could conflict with ozone and particulate matter attainment efforts. Each Equal-Weight Alternative would allow for population growth that will exceed the projections assumed in the 2007 Extreme Ozone Attainment Demonstration Plan and potentially conflict with particulate matter reduction measures. This inconsistency could obstruct the SJVUAPCD's ozone attainment strategy and particulate matter (PM10 and PM2.5) attainment efforts. The recommended policies and implementation measures discussed under Impact 5.7-3 will help minimize air quality impacts associated buildout under each of the Equal-Weight Alternatives. However, because the population accommodated by each of the Equal-Weight Alternatives for the 20-year growth boundary will exceed the population assumptions used by the 2007 Plan each Equal-Weight Alternative is considered inconsistent with the Attainment Plan and therefore, the project impact is considered **significant and unavoidable** for all three alternatives.

Emissions resulting from mobile and stationary sources associated with each Equal-Weight Alternative in both the 20-year and 40-year growth boundaries were not anticipated in the Attainment Demonstration Plan. Accordingly, these emissions, together with emissions associated with regional development, will hinder efforts to achieve and maintain federal and State air quality standards. Thus cumulative impacts are considered **cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

Table 8.0-29 compares the projected population for the City of Patterson used in the 2007 Extreme Ozone Demonstration Plan with the populations accommodated by the No Project and Equal-Weight Alternatives.

Table 8.0-29: Existing and Projected Population				
Alternative	Existing (2009) ¹	2030 Population ²	StanCOG 2030 Population Projection for Patterson ³	Difference
No Project	21,229	33,000	39,067	-6,000
Lower Carbon Future	21,229	35,000	39,067	-4,000
Compact Development	21,229	46,360	39,067	+7,293
Jobs Emphasis	21,229	47,831	39,067	+8,764
PC Env. Review Plan	21,229	64,389	39,067	+25,322
Notes:				
1. State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2009, with 2000 Benchmark. Sacramento, California, May 2009				
2. CMCA, 2009				
3. December 9, 2009 StanCOG Population and Employment Projections, Totals Less Growth In Unincorporated County from Measure E.				

The **No Project Alternative** would result in a population of about 33,196 in 20 years timeframe which is less than the SJVUAPCD population projection for Patterson for 2030. Therefore, the No Project Alternative is consistent with the population projection used by the SJVUAPCD to prepare the 2007 Extreme Ozone Attainment Demonstration Plan, and thus is consistent with the Plan.

The **Lower Carbon Future Alternative** would accommodate a 20-year population of about 35,000 which is within the 20-year projection used in the Extreme Ozone Attainment Demonstration Plan.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in population and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1. As shown in Table 8.0-29, the greatest difference in projected population with that assumed by the Ozone Demonstration Plan would result from the Planning Commission Environmental Review Alternative and the least from the Compact Development Alternative. However, in each case, the inconsistency is considered **significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	1	
Compact Development	2	
Jobs Emphasis	3	
PC Environmental Review	4	

Impact 5.7-5 Carbon monoxide hot spots.

The Air Pollution Control District's Guide for Assessing and Mitigating Air Quality Impacts indicates projects would have no potential to create a violation of the CO standard unless one or more intersections would operate at level of service E or F, or substantially worsen intersections already operating at level of service F. The reader is referred to the discussion under impacts 5.6-1, 5.6-3 and 5.6-5 and to Tables 5.6-8, 5.6-11 and 5.6-14 in section 5.6 Transportation which provides a summary of future intersection Levels of Service for Study Area intersections for each Equal-Weight Alternative for the 20-year growth boundaries. As shown on these tables, development accommodated by each of the Equal-Weight Alternatives would result in traffic congestion (level of service E or F) at 18 of the 23 intersections studied by the year 2030. Implementation of intersection improvements recommended under impacts 5.6-1, 5.6-3 and 5.6-5 would result in levels of service for each intersection of LOS D or better for each of the intersections studied.

CO monitoring in Modesto indicates that the highest 8-hour ambient concentration is typically less than 3ppm, with lower concentrations expected in Patterson. Based on these low ambient CO concentrations and recommended traffic mitigation, project-related traffic congestion is not expected to result in CO concentrations exceeding State standards at any of the study area intersections for both the 20-year and 40-year growth boundaries.

However, none of the roadway or intersection improvements listed under impacts 5.6-1, 5.6-3 and 5.6-5 are fully funded and guaranteed. Moreover, several of the intersections fall under the jurisdiction of other agencies where approval for improvements also cannot be guaranteed. For these reasons, intersection levels of service below LOS D are possible which in turn could result in carbon monoxide hot spots. Accordingly, potential impacts associated with carbon monoxide hot spots are **cumulatively considerable** and **considered significant and unavoidable** for each Equal-Weight Alternative and for the Lower carbon Future Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.7-6: Cumulative impacts relating to climate change – greenhouse gas emissions.

Discussion

Development accommodated by the Equal-Weight Alternatives within both the 20-year and 40-year growth boundaries would result in an increase in population, motor vehicle traffic, fuel use and other activities that generate greenhouse gas (GHG) emissions. The draft Policy Document recommends a range of policies and implementation measures discussed under impact 5.7-6 which will help minimize the increase in GHG emissions associated with the Equal-Weight Alternatives. However, the discussion under impact 5.7-6 suggests that buildout in accordance with each of the Equal-Weight Alternatives will result in a significant net increase in the emission of greenhouse gases above 2010 levels and above target levels established by State law for 2020 and 2050. As a result, this impact is considered **significant unavoidable** for each Equal-Weight Alternative for both the 20-year and 40-year growth boundaries.

Comparison of Alternatives

Table 8.0-30 estimates the net emissions for the No Project, Lower carbon Future and Equal-Weight Alternatives for the years 2030 (the timeframe of the 20-year growth boundaries for each Equal-Weight Alternative) and 2050 (assumed buildout for each Equal-Weight Alternative, and the target year prescribed by Executive Order S-3-05).

The **No Project Alternative** represents the continuation of Business As Usual and results in 2030 emissions that exceed the target reductions set by AB 32. In part this is due to the absence of policies and implementation programs in the 1992 General Plan that speak to the issue of greenhouse gas reduction. However, measures expected to be implemented by the State will reduce future greenhouse emissions associated with the current General Plan somewhat but not to the extent that the reductions prescribed by AB 32 and Executive Order S-3-05 will be achieved.

The **Lower Carbon Future Alternative** would result in lower greenhouse gas emissions in 2030 than those associated with the No Project Alternative and any of the Equal-Weight Alternatives. For the year 2030 projected GHG emissions would exceed the target established by AB32 by about 100,000 metric tons CO₂e (about 35%). By the year 2050 (buildout), the projected GHG emissions will exceed the reduction targets set by Executive Order S-3-05 by about 55%. The gap between the target reduction percentage and projected emissions on 2030 and 2050 is lower for the Lower Carbon Future Alternative than for the No Project and Equal-Weight Alternatives.

As shown in Table 8.0-30, each of the Equal-Weight Alternatives are expected to generate greenhouse emissions in 2030 and 2050 (buildout) that exceed the reduction targets prescribed by AB 32 and Executive Order S-3-05. The Compact Development Alternative will have the next smallest gap between future emissions and the target reductions, followed by the Planning Commission Environmental Review Alternative and the Jobs Emphasis Alternative. The Jobs Emphasis Alternative results in the highest generation of greenhouse gases both in the 2030 and 2050 (buildout) timeframes. The resulting gap between the reduction targets for 2020 could be as high as 93 percent in 2030 and 78 percent at buildout.

As shown on Table 8.0-30, even with the potential reductions associated with recommended policies and programs of both the City and the State, the net GHG emissions associated with each Equal-Weight Alternative for the years 2030 and 2050 are expected to greatly exceed the GHG reduction targets these years. Thus impacts to Climate Change of each Equal-Weight Alternative are considered **cumulatively considerable and significant and unavoidable**.

Table 8.0-30: Summary of 2030 and Buildout
Greenhouse Gas Emissions For Each Alternative
(Metric Tons of CO₂ Equivalent)

Summary Topic	2030					2050 (buildout)			
	No Project	Lower Carbon Future ⁷	Compact Development	Jobs Emphasis	PC Env Review	Lower Carbon Future ⁸	Compact Development	Jobs Emphasis	PC Env Review
Projected "Business As Usual" Emissions ¹ :	367,249	504,503	721,509	922,980	909,153	721,509	956,479	1,201,201	1,097,848
Total Reductions ² :	--	-159,709	-319,415	-411,090	-366,191	-319,415	-584,358	-789,920	-754,019
Net Change In Emissions From Business As Usual ³	367,249	+344,794	+401,602	+511,890	+542,962	+401,602	+372,157	+411,281	+343,829
2009 Baseline Emissions ⁴	287,495	287,495	287,495	287,495	287,495	287,495	287,495	287,495	287,495
Percent Increase/(Reduction)	28%	20%	40%	78%	62%	40%	29%	43%	20%
Reduction Target	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-15% ⁵	-35% ⁶	-35% ⁶	-35% ⁶
Difference Between Target Percentage Reduction and Achieved Reduction	43%	+35	+55	+93	+77	+55	+64	+78	+55

Source: PMC, Patterson General Plan Update EIR Climate Change Summary Report, Table V-8 (see Appendix 5.7B)

Notes:

1. Projected Business As Usual Emissions in Metric Tons of CO₂ Equivalent minus reductions associated with draft Policy Document policies and State programs.
2. The reader is referred to Table 5.7-12. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B on Table V-3.
3. The reader is referred to Table 5.7-12. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B.
4. The reader is referred to Table 5.7-4. The methodologies and assumptions used to derive these data are provided in Appendix 5.7B.
5. For the year 2020 the emissions reduction target is assumed to be 85% of the 2009 baseline (a 15% reduction).
6. For the year 2050, the emissions reduction target is assumed to be 65% of the 2009 baseline (a 35% reduction).
7. Year 2030 GHG emissions are assumed to be equivalent to year 2020 emissions from the Compact Development Alternative.
8. Year 2050 GHG emissions are assumed to be equivalent to the year 2030 emissions from the Compact Development Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	2	
Lower Carbon Footprint	1	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.7-7: Cumulative impacts associated with the risk to people and property associated with the effects of climate change.

Discussion

Existing and new development and the natural environment in Patterson will be subject to climate change impacts resulting from past, present, and future GHG emissions, regardless of the success of local, State, national, or international efforts in reducing future GHG emissions. Due to the existing concentrations of GHG emissions in the atmosphere and the inevitable additional emissions before GHG reductions plans provide reductions, a known amount of warming in the lower atmosphere and consequent changes in historical climate patterns will inevitably occur.

Changes to the City's water supplies, flooding, wildfire potential, environmental health, air quality and other areas are reasonably foreseeable, although not quantifiable in some aspects at present. New development allowed by the Equal-Weight Alternatives could place persons and property at higher levels of risk to climate change effects if it does not anticipate reasonably foreseeable changes in environmental conditions. Without further planning, current requirements may provide inadequate protection against adverse physical impacts and may not anticipate changed conditions resulting from climate change.

The Draft Policy Document recommends a number of policies and implementation measures that will help minimize the impacts of climate change on the City's economy and natural resources and promote a climate-resilient community. Policy AR-7.1 and implementation measure NR-8 require the preparation of a Climate Action Plan within 24 months of General Plan adoption. Implementation measure NR-8 requires the Climate Action Plan to address (among other things) resiliency and adaptation programs to prepare for potential impacts of climate change, and to provide a phased implementation plan to achieve these goals. By applying these policies and implementation measures the exposure to risks of impacts resulting from climate change to future populations accommodated by each of the Equal-Weight Alternatives will be reduced. However the range of potential environmental impacts and the potential responses that may be enacted over time cannot be identified with certainty. For these reasons this impact is considered cumulatively considerable and significant and unavoidable.

Comparison of Alternatives

The **No Project Alternative** would result in a significantly smaller urban area, developed area, and population than any of the Equal-Weight Alternatives. As a result, the No Project Alternative would be expected to generate a risk to fewer residents and properties as a result of GHG emissions than the Equal-Weight Alternatives. However, there are no provisions in the current General Plan that require the preparation of a preparedness plan specifically to address the effects of climate change on future residents and property. For this reason, impacts associated with the No Project Alternative relating to climate change preparedness are considered **significant and unavoidable**.

The **Lower Carbon Future** and **Equal-Weight Alternatives**. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in population and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger service areas than the No Project Alternative. According to Table 8.0-30, GHG emissions would be greatest for the Jobs Emphasis Alternative and least for the Compact Development Alternative. However, policies and implementation measures recommended for impact 5.7-7 as described above requires the preparation of Climate Action Plan which includes a component to speak to the issue of preparedness for climate change.

By applying these policies and implementation measures the exposure to risks of impacts resulting from climate change to future populations accommodated by each of the Equal-Weight Alternatives will be reduced. However the range of potential environmental impacts and the potential responses that may be enacted over time cannot be identified with certainty. For these reasons this impact is considered **cumulatively considerable and significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	2	
Compact Development	1	
Jobs Emphasis	1	
PC Environmental Review	1	

5.8 Noise

Impact 5.8-1: Noise impacts associated with construction activities.

Discussion

Construction activities would include the use of heavy equipment for grading and other activities, through completion of streets, buildings, bridges, public facilities, utilities, groundwater re-charge basins and landscaping. Heavy trucks would travel to and from, and within, the development areas to perform earthwork, and to move equipment and building materials. Smaller equipment, such as jack hammers, pneumatic tools, and saws could also be used throughout the construction phases. The noise associated with these activities would be generated within the entire development project area and at off-site locations near any infrastructure improvements.

Because most construction equipment causes intermittent noise levels up to 89 dBA at a distance of 50 feet, any noise-sensitive locations that would be in close proximity to project-related construction noise could experience a recognizable noise increase. Therefore, although temporary, noise-generating activities over the long-term construction period could cause a significant impact without implementation of reasonable measures to manage construction activities.

Compliance with existing regulations, along with the recommended policies and implementation measures discussed under Impact 5.8-1 will reduce construction-related noise impacts to a **less than significant level** for each of the Equal-Weight Alternatives.

Comparison of Alternatives

The **No Project Alternative** would result in an urban area of 4,967 acres and would accommodate less development and corresponding construction noise than each of the Equal-Weight Alternatives. All new development is subject to the requirements of the Patterson Municipal Code, the City's Noise Element, and the California Environmental Quality Act (CEQA). Project-specific environmental review would identify appropriate mitigation measures for significant construction noise impacts.

The Lower Carbon Future and Equal-Weight Alternatives. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1. Accordingly, construction-related noise impacts would be would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 and a service area of about 6,500 acres). However in each case impacts are considered less than significant.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	

Lower Carbon Future	2
Compact Development	3
Jobs Emphasis	4
PC Environmental Review	5

Impact 5.8-2: Traffic noise.

Discussion

New development accommodated by the Equal-Weight Alternatives would increase traffic within the Study Area thereby increasing traffic related noise along existing and future roadways within the 20 and 40-year growth boundaries. Resulting outdoor activity noise levels would potentially exceed the City's adopted noise standard of 60 Ldn/CNEL in the twenty and forty year timeframe. Traffic noise from roadways would potentially impact existing residential neighborhoods and other sensitive receptors adjoining these rights-of-way. The policies, implementation measures, and mitigation measures listed under Impact 5.8-2 would help minimize impacts relating to traffic noise; however, implementation of any of the Equal-Weight alternatives would allow for a substantial increase in traffic which will expose outdoor activity areas to noise that exceeds the City's currently adopted standard. Therefore, this impact is considered **significant and unavoidable**.

Comparison of Alternatives

Table 8.0-31 and 8.0-32 summarize calculated day-night noise values for the years 2030 and 2050 at typical roadway setbacks for each of the Equal-Weight Alternatives. As shown on Tables 8.0-31 and 8.0-32, transportation-related noise levels at a point 75 feet from the centerline of the corresponding streets will exceed the 60 Ldn/CNEL standard for outdoor activity areas for all of the streets studied, in both the 20-year and 40-year growth boundaries, with the exception of those highlighted. It should be noted that the results shown on Table 8.0-31 and 8.0-32 do not account for acoustical barriers that may exist along roadways. In some instances, the 60 Ldn/CNEL noise level would fall within the street right-of-way.

As shown on Table 8.0-31, the **No Project Alternative** would result in the fewest roadway segments along which the 60 DNL at 75 feet from the roadway would be exceeded (33 of 38 segments). However, because traffic noise would impact existing outdoor use areas, this impact is considered **significant and unavoidable**.

The **Lower Carbon Future Alternative** would generate more vehicle trips than the No Project Alternative, but less than the Compact Development Alternative. Nonetheless, traffic noise would remain significant and unavoidable.

The Equal-Weight Alternatives. Each of the Equal-Weight Alternatives will generate a significant number of additional motor vehicle trips in both the 20-year and 40-year timeframes. As shown on table 8.0-31, the resulting roadway noise at 75 feet from the modeled roadway segments would be nearly identical for each alternative in part because each would carry a similar volume of traffic in the 20-year and 40-year timeframes. When comparing the resulting noise exposure at 75 feet from the right-of-way, the Jobs Emphasis Alternative results in slightly higher noise exposure than the Compact Development and Planning Commission Environmental review Alternatives. However, because traffic noise would

impact existing outdoor use areas, this impact is considered **significant and unavoidable** for each Equal-Weight Alternative.

Table 8.0-31: Generalized 2030 Traffic Noise Exposure For The No Project and Each Equal-Weight Alternative

Roadway	Segment	DNL @ Typical Setback, dB ¹			
		No Project	Compact Development Alternative	Jobs Emphasis Alternative	PC Env Review Alternative
I-5	n/o Sperry Ave.	75.8	75.0	75.7	75.0
	s/o Sperry Ave.	76.0	76.1	76.2	76.1
SR-33	w/o Baldwin Rd.	68.2	68.2	68.0	67.5
	e/o Baldwin Rd.	65.8	65.1	65.4	64.9
	n/o Zacharias Rd.	66.5	66.4	65.7	67.3
	s/o Zacharias Rd.	67.4	67.4	67.5	66.6
	n/o Las Palmas Ave.	66.8	66.8	66.9	66.6
	s/o Las Palmas Ave.	67.5	66.7	67.3	67.5
	n/o Sperry Ave.	67.3	66.6	66.8	67.1
	s/o Sperry Ave.	70.0	69.6	69.8	69.7
Rogers Rd.	s/o SR-33	56.8	60.0	61.8	61.4
	n/o Sperry Ave.	65.9	68.2	69.1	68.4
	s/o Sperry Ave.	60.0	61.5	61.4	62.3
Sperry Ave.	w/o Rogers Rd.	65.4	65.6	66.8	66.7
	e/o Rogers Rd.	64.7	66.5	67.1	66.8
	w/o Baldwin Rd.	65.6	67.7	68.0	67.7
	e/o Baldwin Rd.	65.5	67.2	67.9	67.6
	w/o Ward Ave.	64.1	65.7	66.3	65.6
	e/o Ward Ave.	62.6	64.5	65.5	64.8
	w/o SR-33	62.2	62.3	63.2	62.1
	e/o SR-33	59.3	59.0	60.4	59.2
Baldwin Rd.	n/o Sperry Ave.	60.1	62.3	63.6	63.4
	s/o Sperry Ave.	60.1	63.3	63.5	63.9
	s/o SR-33	54.4	58.4	59.8	58.1
Ward Ave.	n/o Sperry Ave.	63.6	61.7	64.4	64.5
	s/o Sperry Ave.	62.4	65.7	62.2	62.2
Zacharias Rd.	w/o SR-33	61.0	64.5	64.8	64.9
	e/o SR-33	57.2	63.0	62.9	63.9
Eucalyptus Ave.	e/o SR-33	54.1	60.3	60.3	61.0
Las Palmas Ave	w/o SR-33	62.1	62.0	62.6	62.1
	e/o SR-33	63.9	64.5	65.5	65.3
	w/o Poplar Ave.	64.0	64.0	65.1	63.9
	e/o Poplar Ave.	65.8	66.0	66.3	65.6
Sycamore Ave.	n/o Las Palmas Ave.	63.2	63.0	63.7	64.0
	s/o Las Palmas Ave.	63.2	62.9	63.9	63.2
Poplar Ave.	n/o Las Palmas Ave.	61.5	62.1	60.6	61.0
W. Main Ave.	w/o Carpenter Ave.	63.6	63.9	64.6	62.7
W. Main Ave.	e/o Carpenter Ave.	63.0	63.2	64.2	63.2

Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed.
2. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.

Table 8.0-32: Generalized 2050 Traffic Noise Exposure For Each Equal-Weight Alternative

Roadway Segment	DNL @ Typical Setback, dB ¹		
	Compact Development Alternative	Jobs Emphasis Alternative	PC Env Review Alternative
I-5 n/o Sperry Ave.	77.1	77.9	77.1
I-5 s/o Sperry Ave.	78.0	78.2	78.0
Rogers Rd. s/o Zacharias	71.0	71.5	71.1
Sperry Ave. e/o Rogers Rd.	68.0	68.0	67.9
Baldwin Rd. n/o Sperry Ave.	62.1	63.4	62.7
Sperry Ave. e/o Ward Ave.	62.5	64.7	64.4
Ward Ave. n/o Las Palmas Ave.	63.2	63.0	63.3
Zacharias Rd. w/o SR-33	68.0	68.1	68.0
SR-33 n/o Zacharias Rd.	67.6	67.8	68.0
SR-33 s/o Walnut Ave.	67.6	68.8	68.3
Ward Ave. n/o Marshall Rd.	65.5	65.7	65.7
SR-33 s/o Sperry Ave.	68.0	68.1	68.1
Las Palmas Ave. w/o Sycamore Ave.	65.5	66.4	66.4
Main St. e/o Carpenter Rd.	65.5	65.5	65.5

Source: Brown-Buntin Associates, Inc.

Notes:

1. Assumed to be 75 feet from the center of all roadways except I-5 where a setback of 200 feet was assumed.
2. Calculations are generalized and do not take into consideration sound walls or other site-specific conditions.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.8-3: Project noise impacts associated with rail traffic.

Discussion

Rail activity within the City of Patterson is likely to increase in the future. Although increased rail activity is not a consequence of the City's draft General Plan, future development accommodated by the Equal-Weight Alternatives could be exposed to noise levels that exceed the City's Noise Element standards. Development of the West Park Specific Plan is expected to generate approximately six train operations per day that would pass through the Study Area. This would represent more than a doubling of existing rail traffic through the City. Development accommodated by the Equal-Weight Alternatives would expose future land uses and residents to increased train and related noise. The impact of increased rail activities would be temporary and short term as the trains pass by. The temporary nature of the impact combined with the policies and implementation measures outlined under Impact 5.8-3 would reduce noise impact from rail activities to a **less than significant level**.

Comparison of Alternatives

The **No Project Alternative** would result in less new residential development adjacent to rail activities than the other alternatives over the twenty timeframe. As a result, The No Project Alternative would expose fewer residents and non-residential development to the adverse effects of train noise than would the Equal-Weight Alternatives.

The **Lower Carbon Future Alternative** would result in comparable impacts relating to rail traffic noise as the Compact Development Alternative.

The **Compact Development Alternative** designates land for residential development on the east side of the railroad north of Bartch Avenue and south of Sperry Avenue within the 20 year growth boundary, and on the west side of the railroad right of way between Bartch Avenue and Elfers Road within the 40 year (buildout) growth boundary. Noise levels in outdoor activity areas within these areas would be exposed to temporary noise levels that exceed the 60 db DNL standard established by the City's currently adopted Noise Element (see Figure 5.8-6). The Compact Development Alternative proposes more

residential development adjacent to rail activities than The No Project Alternative and would expose more residents and properties to the adverse impacts of train noise than the No Project Alternative.

The **Jobs Emphasis Alternative** designates land for residential development on the east side of the railroad north of Bartch Avenue and south of Sperry Avenue within the 20 year growth boundary, and on the west side of the railroad right of way between Bartch Avenue and an area midway between Elfers Road and Marshall Road within the 40 year (buildout) growth boundary. In addition, the Jobs Emphasis Alternative designates land for residential development on the east side of the tracks north of Eucalyptus Avenue in the 40-year growth boundary, and on the west side of the tracks between Eucalyptus Avenue and a point about midway between Lemon Avenue and Magnolia Avenue. Noise levels in outdoor activity areas within these areas would be exposed to temporary noise levels that exceed the 60 db DNL standard established by the City's currently adopted Noise Element (see Figure 5.8-7). The Jobs Emphasis Alternative proposes more residential development adjacent to rail activities than the No Project Alternative or the Compact Development Alternative and would expose more residents and properties to the adverse effects of train noise.

The **Planning Commission Environmental Review Alternative** designates land for residential development on the east side of the railroad north of Bartch Avenue and south of Sperry Avenue within the 20 year growth boundary, and on the west side of the railroad right of way between Bartch Avenue and an area midway between Elfers Road and Marshall Road within the 40 year (buildout) growth boundary. In addition, the Planning Commission Environmental Review Alternative designates land for residential development on the east side of the tracks north of Eucalyptus Avenue to Lemon Avenue within the 40-year growth boundary. Noise levels in outdoor activity areas within these areas would be exposed to temporary noise levels that exceed the 60 db DNL standard established by the City's currently adopted Noise Element (see Figure 5.8-8). The Planning Commission Environmental Review Alternative proposes more residential development near rail activities than the other alternatives. As a result, the Planning Commission Environmental Review Plan Alternative would result in more noise impacts associated with rail traffic than the other alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.8-5: Project impacts relating to stationary noise sources.

Discussion

New development accommodated by the Equal-Weight Alternatives could generate noise levels in excess of adopted City noise standards and adversely impact existing noise-sensitive land uses. In addition, new noise-sensitive land uses could be developed in areas of existing stationary noise sources. Implementation of policies HS-4.7 through HS-4.11 would reduce noise impacts associated with new stationary noise sources and the placement of new noise-sensitive land uses near existing stationary noise. However, because school districts, County and State agencies may place noise generating uses without City review and approval, stationary noise impacts cannot be mitigated by the City to a less than significant level. As a result, impacts associated with stationary noise sources are considered **significant and unavoidable** for each Equal-Weight Alternative and for the 20-year and 40-year timeframes.

Comparison of Alternatives

The No Project Alternative would result in an urban area of 4,967 acres in the twenty and forty year timeframe. Because The No Project Alternative would accommodate less total future development, the potential for new development to adversely impact existing development is less, and the potential for existing stationary noise sources to adversely impact new development is less than under any of the Equal-Weight Alternatives.

The Lower Carbon Future Alternative would result in an urban area of 6,500 acres in the twenty and forty year timeframe. The Lower Carbon Future Alternative would accommodate less total future development than the Compact Development Alternative, but more than the No Project Alternative. Accordingly, the potential for new development to adversely impact existing development would be less than for any of the Equal-Weight Alternatives.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger service areas than the No Project Alternative. Accordingly, the potential for stationary noise sources to adversely impact surrounding development would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Compact Development Alternative (a 40-year population of about 56,000 and a service area of about 7,700 acres). However in each case impacts these impacts are considered significant and unavoidable.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.8-7: Cumulative increase in noise conflicts in the region.

Discussion

The setting for the cumulative analysis of noise impacts includes existing, proposed, approved, and planned projects within the current City limits, the Study Area, and the region. Sources of noise are from motor vehicles, rail, aircraft, and stationary sources. Buildout of the Study Area in accordance with any of the Equal-Weight Alternatives would result in additional traffic along area roadways and result in increased noise. In addition, buildout could result in additional stationary noise conflicts associated with development accommodated within the 20-year and 40-year growth boundaries. The cumulative impact of the growth in background noise, together with noise associated with regional development, is considered **cumulatively considerable**. The draft policies listed for project Impacts 5.8-2, 5.8-3, 5.8-4, and 5.8-5 will help mitigate regional impacts relating to noise from transportation and stationary sources. However, cumulative impacts will remain **cumulatively considerable** and **significant and unavoidable**.

Comparison of Alternatives

The **No Project Alternative** would result in an urban area of 4,967 acres. Since The No Project Alternative would result in a lower population as well as less development than the Equal-Weight Alternatives, the No Project Alternative would have less cumulative noise impacts than the other alternatives.

The **Lower Carbon Future Alternative** would result in an urban area of 6,500 acres in the twenty and forty year timeframe. The Lower Carbon Future Alternative would accommodate less total future development than the Compact Development Alternative, but more than the No Project Alternative. Accordingly, the potential for new development to adversely impact existing development would be less than for any of the Equal-Weight Alternatives.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative. Accordingly, the potential for additional noise conflicts associated with new construction, stationary sources, traffic noise, aircraft and rail activities would be would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Compact Development Alternative (a 40-year population of about 56,000 and a service area of about 7,700 acres). However in each case impacts are considered **cumulatively considerable and significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.9 Geology and Soils

Impact 5.9-1: Project impacts associated with seismic events.

Discussion

The Study Area lies within an area subject to the effects of groundshaking in the event of an earthquake. According to the Stanislaus County Multi-Jurisdiction Hazard Mitigation Plan, the City of Patterson is located within an area of Stanislaus County where the greatest damage would occur as a result of a seismic event. The combination of Study Area characteristics and compliance with the Uniform Building Code (UBC) and California Building Code (CBC) would be sufficient to prevent significant damage from ground shaking during seismic events resulting from movement on any of the faults or fault systems described in this EIR. In addition, the Draft Policy Document sets forth additional policies and implementation measures to address potential impacts from seismic events (refer to the discussion under Impact 5.9-1). For these reasons, potential impacts associated with seismic activities are considered **less than significant**.

Comparison of Alternatives

The **No Project Alternative** would result in an urban area of 4,967 acres in the twenty year timeframe. Accordingly, the No Project Alternative would expose fewer residents, employees and properties to seismic impacts than the other Equal-Weight Alternatives. However, all new development must satisfy relevant provisions of the City's Safety Element as well as compliance with the UBC and CBC.

The Lower Carbon Future and Equal-Weight Alternatives. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative. Accordingly, the potential exposure to the risk of seismic events would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 and a service area of about 6,500 acres). However in each case impacts are considered **less than significant**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.9-2: Project impacts associated with landslides and slope stability.

Discussion

According to the Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan, the area west of Interstate 5 is composed of geologic formations that are considered susceptible to slope failure and sliding. There is a history of landslides throughout the Diablo Range in Stanislaus County. The steep slopes and undesirable geology of the area on the west side of the County present substantial risks to people and property in certain conditions.

Comparison of Alternatives

The No Project Alternative, Lower Carbon Future and the Compact Development Alternative do not designate land for urban development west of Interstate 5 in the area susceptible to slope instability.

The Jobs Emphasis Alternative and the Planning Commission Environmental Review Alternative designate the area west of Interstate 5 between Sperry Avenue and Zacharias Road as Mixed-Use Hillside Development. This designation would allow a range of housing, commercial and public land uses consistent with the limitations described in policy LU-1.4. Although the portion of the Study Area west of I-5 poses a significant risk to new construction, Policy LU-1.4 (b) acknowledges these constraints by establishing target development acreages for those areas where the slope is less than 20 percent. In addition, Policy LU-1.4 (I) requires Mixed-Use Hillside Development to be preceded by a geotechnical investigation. Compliance with these requirements and the UBC and CBC will reduce potential hazards to development to a **less than significant** level.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	1	
Compact Development	1	
Jobs Emphasis	2	
PC Environmental Review	2	

Impact 5.9-3: Project impacts associated with soil erosion.

Discussion

Each of the Equal-Weight Alternatives will accommodate the construction of new roadways, improvements to existing roadways, new bridges, infrastructure, as well as additional commercial, residential, and industrial development. Grading, site preparation, and construction activities associated with this development could cause soil disturbance and increase the potential for soil erosion. Compliance with the California Building Code and draft General Plan policies discussed under Impact 5.9-3 will reduce potential soil erosion impacts to a **less than significant** level.

Comparison of Alternatives

The No Project Alternative would disturb less land area than any of the Equal-Weight Alternatives. All new development is subject to compliance with the City's Municipal Code, Uniform Building Code, the Storm Water Pollution Prevention (SWPP) and National Pollution Discharge Elimination System

(NPDES) permitting requirements, as well as the California Environmental Quality Act. Through application of these requirements, potential impacts relating to soil erosion impacts associated with the No Project Alternative are expected to be less than those associated with any of the Equal-Weight Alternatives but remain less than significant.

The Lower Carbon Future and Equal-Weight Alternatives. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative. Accordingly, the potential for impact relating to soil erosion would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 and a service area of about 6,500 acres).

In addition, the **Jobs Emphasis Alternative** and the **Planning Commission Environmental Review Alternative** designate the area west of Interstate 5 between Sperry Avenue and Zacharias Road as Mixed-Use Hillside Development. This designation would allow a range of housing, commercial and public land uses consistent with the limitations described in policy LU-1.4. Although the portion of the Study Area west of I-5 poses a significant risk of soil erosion, Policy LU-1.4 (b) acknowledges these constraints by establishing target development acreages for those areas where the slope is less than 20 percent. In addition Policy LU-1.4 (I) requires Mixed-Use Hillside Development to be preceded by a geotechnical investigation. Compliance with these requirements and the UBC will reduce potential impacts associated with soil erosion a **less than significant** level.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower Carbon Future		2
Compact Development		3
Jobs Emphasis		4
PC Environmental Review		5

Impact 5.9-4: Project impacts associated with expansive and unstable soils.

Discussion

The continued development of the City would result in construction activities overlying expansive or unstable soils. Newly constructed buildings, pavements, and utilities could be damaged by soil expansion and contraction.

The City of Patterson has adopted the California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code or California Building Code (CBC). The CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil related impacts. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC also contains drainage related requirements in order to control surface drainage and reduce seasonal fluctuations in soil moisture content.

Application of the California Building Code along with the geotechnical investigations required by policies LU-1.4 and HS-1.1 and measure HS-1.1 will reduce potential impacts relating to expansive soils to a **less than significant** level for each of the Equal Weight Alternatives.

Comparison of Alternatives

The No Project Alternative. Continued development within the existing General Plan area could result in development on expansive soils. The No Project Alternative would disturb less land area than any of the Equal-Weight Alternatives and the potential for development on expansive soils would therefore be less. All new development is subject to compliance with the City's Municipal Code, California Building Code, the Storm Water Pollution Prevention (SWPP) and National Pollution Discharge Elimination System (NPDES) permitting requirements, as well as the California Environmental Quality Act. Through application of these requirements, potential impacts relating to expansive soils associated with the No Project Alternative are expected to be **less than significant**.

The Lower carbon Future and Equal-Weight Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative. Accordingly, the potential for impacts relating to expansive soils would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 and a service area of about 6,500 acres). However in each case impacts are considered **less than significant**.

In addition, the **Jobs Emphasis Alternative** and the **Planning Commission Environmental Review Alternative** designate land west of Interstate 5 between Sperry Avenue and Zacharias Road as Mixed-Use Hillside Development. This designation would allow a range of housing, commercial and public land uses consistent with the limitations described in policy LU-1.4. Development on soils west of Interstate 5 could pose additional constraints relating to shallow bedrock, steep and unstable slopes, expansive soils and the potential for landslides. Policy LU-1.4 (b) acknowledges these constraints by establishing target development acreages for those areas where the slope is less than 20 percent. In addition Policy LU-1.4 (I) requires Mixed-Use Hillside Development to be preceded by a geotechnical investigation.

Compliance with these requirements and the CBC will reduce potential impacts associated with expansive soils to a **less than significant** level.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.9-5: Project impacts associated with bridge construction.

Discussion

Implementation of any of the Equal-Weight alternatives may involve the construction of new roadway bridges to complete the circulation system shown on the Circulation Plan Diagram (Figure 3.0-9) over the next forty years. At present, the precise number or location of such bridges is not known; however, it is expected that bridges will likely be constructed in the general locations shown on Figure 5.9-3. Bridge construction would result in soil disturbance and increase the potential for soil erosion and impacts to surface water quality. In addition, newly constructed bridges could be damaged by differential settlement due to soil expansion and contraction. Application of the California Building Code along with the geotechnical investigations required by policy HS-1.1 and measure HS-1.1 will reduce impacts associated with bridge construction to a **less than significant** level.

Comparison of Alternatives

The No Project Alternative would result in an urban area of about 4,900 acres. This Alternative would not generate the same level or amount of development as proposed under any of the Equal-Weight Alternatives and would be served by the existing roadway system with improvements identified in the 2006 Impact Fee Justification Study. None of the bridge improvements would be needed as part of the No Project Alternative. The South County Corridor would be constructed by the Stanislaus Council of Governments (StanCOG) within one of the alignments currently under consideration which may require the widening of the W. Main Street bridge over the San Joaquin River and over Del Puerto Creek along Zacharias Avenue. Since the No Project Alternative would not result in the construction of the number and location of bridges associated with the Equal-Weight Alternatives, it would result in less potential geologic impacts relating to bridge construction.

The **Lower Carbon Future Alternative** would result in an urban area of 6,500 acres in forty years and would confine development to an area east of the Delta Mendota Canal. All of the potential bridge locations shown on Figure 5.9-3 could be constructed except for the bridge over Del Puerto Creek to connect Del Puerto Canyon Road with the future interchange at Interstate 5 and Zacharias Road.

The **Compact Development Alternative** would result in an urban area of 7,664 acres in forty years and would confine development to an area east of the California Aqueduct. All of the potential bridge locations shown on Figure 5.9-3 could be constructed except for the bridge over Del Puerto Creek to connect Del Puerto Canyon Road with the future interchange at Interstate 5 and Zacharias Road.

The **Jobs Emphasis Alternative** and **Planning Commission Environmental Review Alternatives** would require all of the potential bridges shown on Figure 5.9-3 and would therefore result in greater potential impacts associated with bridge construction.

The **South County Corridor**. The Circulation Diagram (Figure 3.0-9) shows a conceptual alternate route for the South County Corridor to connect W. Main Street with Zacharias Road by way of Jennings Road and a separate bridge over the San Joaquin River. The ultimate alignment of the South County Corridor will be determined by StanCOG as a result of project-specific analysis of constraints and costs. The conceptual alignment is shown as an alternative for StanCOG to consider as part of this planning effort. However, should this alternative be chosen, it would require a separate bridge over the San Joaquin River and potentially another bridge over a smaller tributary.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower Carbon Future		2
Compact Development		3
Jobs Emphasis		4
PC Environmental Review		5

5.10 Biological Resources

Impacts 5.10-1, 5.10-2, 5.10-4, 5.10-5, 5.10-7, 5.10-8: Project impacts resulting in the permanent loss of habitats.

Discussion

Development accommodated by the No Project and Equal-Weight Alternatives could result in direct and indirect impacts to habitat areas for plants and animals. These habitats include:

- Aquatic
- Orchards, irrigated row crops (such as alfalfa), ruderal, redwood plantation and developed areas
- Annual grasslands
- Foraging habitat for Sandhill cranes and peregrine falcons
- Certain special-status species that may intermittently occur in the Study Area,
- Vernal pool habitat
- Riparian habitat along creeks and the San Joaquin River

Discussion of Alternatives

Tables 8.0-33 and 8.0-34 provide a summary of the habitats in the Study Area and adjoining areas with the corresponding acreage impacted by the No Project Alternative as well as the Equal-Weight Alternatives for the 20-year and 40-year timeframes.

Implementation of the policies, implementation measures, and mitigation measures recommended in section 5.10 would ensure that impacts to habitats are identified and avoided, and if avoidance is determined to be infeasible, that appropriate mitigation are implemented. Implementation of these measures will ensure impacts relating to habitat loss are **less than significant**.

The **No Project Alternative** would result in the permanent loss of about 2,200 additional acres of habitat through the development of urban land uses. As shown on Table 8.0-33, this acreage consists primarily of row crops and orchards surrounding the current City limits. The No Project Alternative designates less land and habitat area for urban development than any of the Equal-Weight Alternatives and avoids sensitive habitats such as the vernal pool and riparian resources that exist along Del Puerto Creek west of Interstate 5. According to the biological assessment prepared for section 5.10-Biological Resources (Appendix 5.10) the land east of the California Aqueduct is considered marginal and unproductive habitat for the federally-endangered San Joaquin kit fox. New development would continue to be subject to project-specific environmental review as well as the goals, policies and implementation measures of the 1992 General Plan. However, development under the current General Plan would not be subject to the specific programmatic mitigations recommended in section 5.10-Biological Resources.

The **Lower Carbon Future Alternative** would result in the permanent loss of about 3,423 acres at buildout and would confine development to an area generally east of the Delta Mendota Canal. As with the No Project Alternative, the majority of acreage consists of row crops and orchards and additional acreage of aquatic resources which primarily consist of irrigation laterals. The Lower Carbon Future Alternative would require the least amount of habitat acreage converted for wastewater disposal ponds (45 acres) after the No Project Alternative. This acreage consists of irrigated row crops and orchards.

The Compact Development Alternative. The Compact Development Alternative would result in about 4,400 acres of additional habitat permanently converted to an urban use over a forty year timeframe and would confine development to an area east of the California Aqueduct. As with the No Project Alternative, the majority of acreage consists of row crops and orchards, but also includes a small portion of riparian habitat along Del Puerto Creek and additional acreage of aquatic resources which primarily consist of irrigation laterals. The Compact Development Alternative would require the least amount of habitat acreage converted for wastewater disposal ponds of the Equal-Weight Alternatives (80 acres). This acreage consists of irrigated row crops and orchards as summarized in Table 8.0-34.

The Jobs Emphasis Alternative. The Jobs Emphasis Alternative would result in an additional 7,500 acres of habitat permanently converted to urban use over a 40-year period. In addition to row crops and orchards, the Jobs Emphasis Alternative designates land west of Interstate 5 for urban development. This area includes sensitive habitats associated with Del Puerto Creek and a vernal pool, and is considered potential habitat for the federally endangered San Joaquin kit fox. The Jobs Emphasis Alternative also includes aquatic resources associated with irrigation laterals as well as an irrigation pond. The Jobs Emphasis Alternative would require the conversion of 97 acres of habitat for wastewater disposal ponds. This acreage consists of irrigated row crops and orchards as summarized in Table 8.0-34.

The Planning Commission Environmental Review Alternative. The Planning Commission Environmental Review Alternative would result in an additional 8,500 acres of habitat permanently converted to urban use over a 40-year period, which is the most acreage of the Equal-Weight Alternatives. In addition to row crops and orchards, the Planning Commission Environmental Review Alternative designates land west of Interstate 5 for urban development. This area includes sensitive habitats associated with Del Puerto Creek and a vernal pool, and is considered potential habitat for the federally endangered San Joaquin kit fox. The Planning Commission Environmental Review Alternative also includes aquatic resources associated with irrigation laterals as well as an irrigation pond. The Planning Commission Environmental review Alternative would require the conversion of an additional 115 acres for wastewater disposal ponds. This acreage consists of irrigated row crops and orchards as summarized in Table 8.0-34.

Table 8.0-33: Summary of Habitats And Corresponding Acreage For No Project and Equal-Weight Alternatives

Habitat Type	No Project Alternative	Lower Carbon Future		Compact Development Plan			Jobs Emphasis Alternative			PC Env Review Plan		
		Total In 20 Years	Total in 40 Years	Total In 20 Year Area	Total In 40 Year Area	Both Areas Combined	Total In 20 Year Area	Total In 40 Year Area	Both Areas Combined	Total In 20 Year Area	Total In 40 Year Area	Both Areas Combined
Irrigated Row Crop --Alfalfa	400.8	400.8	1,006.0	1,006.0		1,006.0	517.0	1,646.0	2,163.0	944.0	64.0	1,008.00
Aquatic	41.0	41.0	47.0	47.0	2.7	49.7	47.9	6.0	53.9	53.6	3.5	57.08
California Annual Grassland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	415.0	415.0	0.0	415.0	415.00
Orchard	973.6	973.6	1,299.1	1,299.1	442.0	1,741.1	0.0	742.0	2,968.0	0.0	836.8	3,452.80
Redwood Plantation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	7.8		7.82
Riparian	2.3	2.3	0.0	0.0	4.2	4.2	11.0	3.0	14.0	9.0	5.1	14.08
Irrigated Row Crop/Other	852.1	852.1	0.0	0.0	554.0	1,623.1	1,584.0	185.0	1,769.0	2,571.0	951.0	3,522.00
Ruderal	2.4	2.4	2.4	2.4	0.2	2.6	57.0	80.0	137.0	5.7	0.0	5.69
Vernal Pool	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.8	0.81
Vineyard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.10
Sub-Total:	2,272.1	2,272.1	3,423.6	3,423.6	1,003.1	4,426.7	4,442.9	3,085.8	7,528.7	6,256.2	2,276.2	8,532.38
Developed/Other:	2,694.9	2,694.9	3,079.4	3,079.4	158.9	3,237.3	3,228.1	708.2	3,936.3	3,581.8	331.8	3,913.62
Total:	4,967.0	4,967.0	6,503.0	6,503.0	1,162.0	7,664.0	7,671.0	3,794.0	11,465.0	9,838.0	2,608.0	12,446.0
Sources: HT Harvey, 2010, HT Harvey, 2006, HT Harvey, 2002, CMCA, 2010												

Table 8.0-34: Habitats Associated With Other Components of the General Plan¹

Land Use	Habitat Type	Acres
South County Corridor	Irrigated Row Crop/Alfalfa	29.05
	Irrigated Row Crop/Other	6.8
	Orchard	7.16
	Riparian	0.04
	Total:	43.4
South County Corridor Alternate Route	Irrigated Row Crop/Alfalfa	29.0
	Irrigated Row Crop/Other	16.0
	Riparian Woodland	4.0
	Riparian	3.0
	Total:	52.0
Southern By Pass	Irrigated Row Crop/Alfalfa	20.0
	Orchard	23.0
	Irrigated Row Crop/Other	12.0
	Total:	55.0
Regional Park	Irrigated Row Crop	50.0
Wastewater Treatment Plant	Irrigated Row Crop/Alfalfa	74.0
	Orchard	144.0
	Irrigated Row Crop/Other	381.0
	Total:	599.0
Zacharias Road Interchange	Irrigated Row Crop	20.0
Las Palmas/E. Main Street Bridge Widening	Riparian	2.0
Sources: HT Harvey, 2010, HT Harvey, 2006, HT Harvey, 2002, CMCA, 2010		
1. Applies to all three Equal-Weight Alternatives.		

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.10-9, 5.10-10, 5.10-11, 5.10-12, 5.12-13, 5.10-14, 5.10-15, 5.10-16, 5.10-17, 5.10-18 Project impacts to State and federally-listed plant and wildlife species.

Discussion

Development accommodated by the No Project Alternative and the Equal-Weight Alternatives could result in direct and indirect impacts to wildlife and plant species listed in accordance with the State Endangered Species Act and/or the federal Endangered Species Act. These species include:

- Elderberry Longhorn Beetle
- California red-legged frog
- California tiger salamander
- American peregrine falcon
- Swainson's hawk
- Burrowing owl
- San Joaquin kit fox
- Southwest pond turtles
- Nesting avians
- Raptors
- Special status plants

Mitigation measures listed under impacts 5.10-9, 5.10-10, 5.10-11, 5.10-12, 5.12-13, 5.10-14, 5.10-15, 5.10-16, 5.10-17, 5.10-18 require consultation with appropriate federal and State agencies and a range of mitigation measures should new development have the potential to adversely impact these species. These measures set forth the programmatic response to these potential impacts which are expected to reduce potential project related impacts associated with the Equal-Weight Alternatives to a less than significant level. However, cumulative impacts are considered **cumulatively considerable** and **significant and unavoidable**.

Comparison of Alternatives

The No Project Alternative. According to the biological assessment prepared for this EIR for section 5.10 (H.T. Harvey and Associates. 2009 City Of Patterson General Plan Update Environmental Impact Report, Biological Resources) development within the current General Plan area has the potential to adversely impact the following species:

- Swainson's hawk
- Burrowing owl
- Southwest pond turtles
- Nesting avians
- Raptors
- Special status plants

Development within the current General Plan area will continue to be subject to project-specific environmental review through which potential impacts to special-status species will be identified and appropriate mitigation recommended. The number of species potentially affected is less than the number potentially affected by the Equal-Weight Alternatives because of the smaller area involved and specific habitats located within the current General Plan area as summarized in Table 8.0-33, above. However, development under the current General Plan would not be subject to the specific programmatic mitigations recommended in section 5.10-Biological Resources.

The Lower Carbon Future Alternative would result in an urban area of about 6,500 acres at buildout and would confine development to an area east of the Delta Mendota Canal. The species potentially impacted would be comparable to those associated with the Compact Development Alternative.

The Compact Development Alternative. The Compact Development Alternative would result in an urban area of 7,664 acres in forty years and would confine development to an area generally east of the California Aqueduct. In addition to the species potentially impacted by development within the current General Plan area described above for the No Project Alternative, development accommodated by the Compact Development Alternative could potentially impact the Elderberry longhorn beetle.

The Jobs Emphasis and Planning Commission Environmental review Alternatives. Both of these alternatives designate land for development that includes and exceeds the area covered by the No Project and Compact Development Alternatives, including land west of Interstate 5. In addition to the species potentially impacted by development within the current General Plan area as described above for the No Project Alternative, and those described for the Compact Development Alternative, development accommodated by the Jobs Emphasis and Planning Commission Environmental Review Alternatives could adversely impact the following special status species:

- California red-legged frog
- California tiger salamander
- San Joaquin kit fox

Because of the reduction region-wide of habitat for special-status animal species associated with each alternative, cumulative impacts are considered **cumulatively considerable and significant and unavoidable**.

**Table 8.0-35: Special Status Species Potentially Impacted
By Each Alternative**

No Project	Lower Carbon Future and Compact Development	Jobs Emphasis and Planning Commission Environmental Review Alternatives
Swainson's hawk Burrowing owl Southwest pond turtles Nesting avians Raptors Special status plants	Elderberry Longhorn Beetle Swainson's hawk Burrowing owl Southwest pond turtles Nesting avians Raptors Special status plants	Elderberry Longhorn Beetle California red-legged frog California tiger salamander Swainson's hawk Burrowing owl San Joaquin kit fox Southwest pond turtles Nesting avians Raptors Special status plants

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.10-19: Potential downstream project impacts to water quality.

Discussion

Development accommodated by the No Project and Equal-Weight Alternatives have the potential to degrade water quality in downstream water bodies such as irrigation laterals, Del Puerto Creek and the San Joaquin River. As discussed under impact 5.10-19, future development, would be required to comply with State and federal water quality regulations, including California's General Construction Stormwater Permit, which requires preparation and implementation of a Stormwater Pollution

Prevention Plan (SWPPP) designed to manage stormwater quality degradation through best management practices during and after construction. These practices may include temporary drainage ditches, culverts, berms, and/or straw bales that confine stormwater and prevent it from carrying sedimentation off of the Study Area. Compliance with the SWPPP, project-specific environmental review and the currently-required provisions of the City's Municipal Code, along with the measures identified under impact 5.10-19 will reduce the potential for indirect impacts to downstream biological resources to **less than significant** levels.

Comparison of Alternatives

The **No Project Alternative** would result in an urban area of 4,967 acres in the twenty. Since The No Project Alternative would result in a lower population as well as less development than the other alternatives, the No Project Alternative would have less potential for downstream impacts to water bodies than the Equal-Weight Alternatives.

The **Lower Carbon Future and Equal-Weight Alternatives**. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative. Accordingly, the potential for potential impacts to downstream water bodies associated with new construction would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 and a service area of about 6,500 acres). However in each case impacts are considered **less than significant**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.10-20: Cumulative impacts to sensitive biological resources.

Discussion

Development activities in the region inclusive of those accommodated by the No Project and Equal-Weight Alternatives would result in disturbance to special-status wildlife and plants, their habitats, and other sensitive biological resources. The incremental effect of development within the Study Area when combined with the effects created by other past and reasonably foreseeable future projects would be mitigated by individual project applicants obtaining regulatory approvals and by implementation of the policies and implementation measures discussed in section 5.10. However, development accommodated by the No Project and Equal-Weight Alternatives in conjunction with regional development could still result in the loss of substantial sensitive habitat areas as well as farmland utilized by state and federally listed species. This impact is considered **cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

The No Project Alternative would result in an urban area of 4,967 acres in the twenty. Since The No Project Alternative has the potential to result in the permanent loss of less habitat than the other alternatives, the No Project Alternative would have less potential cumulative impacts to biological resources than the Equal-Weight Alternatives.

The Lower Carbon Future and Equal-Weight Alternatives. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative. Accordingly, the potential for cumulative adverse impacts to biological resources associated with the Equal-Weight Alternatives would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 and a service area of about 12,700 acres) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 and a service area of about 6,500 acres). However in each case the impacts are considered **cumulatively considerable and significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.11 Agricultural Resources

Impacts 5.11-1, 5.11-2, 5.11-3: Permanent loss of prime farmland and other important farmland.

Discussion

Development accommodated by the No Project and Equal-Weight Alternatives would result in the permanent loss of prime farmland within the 20 and 40-year growth boundaries. Prime farmland is defined in the United States Code as “*land that has the best combination of physical and chemical characteristics for producing... agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion...*” Because nearly all undeveloped land that surrounds the developed areas of Patterson is classified and mapped as Prime Farmland, expansion of the City’s boundaries under any of the alternatives will result in the conversion of Prime Farmland. Policies and implementation measures recommended by the Draft Policy Document under impacts 5.11-1, 5.11-2, 5.11-3 will help reduce this impact. However, project and cumulative impacts are considered **significant and unavoidable** and **cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

Table 8.0-36 compares the acreage of important farmland potentially converted to an urban use under the No Project and Equal-Weight Alternatives for both the 20-year and 40-year timeframes. As shown in Table 8.0-36, the **No Project Alternative** would result in the conversion of the least acreage of prime farm land (2,204 acres) followed by the Lower Carbon Future, Compact Development Alternative (4,421 acres), Jobs Emphasis (7,118 acres) and Planning Commission Environmental Review Alternative (8,372 acres).

Because of the smaller population served, the **Lower Carbon Future Alternative** would require the least amount of farmland converted for wastewater disposal ponds (45 acres). This acreage consists of irrigated row crops and orchards.

The **Compact Development Alternative** would require the conversion of about 80 acres farmland for wastewater disposal ponds. This acreage consists of irrigated row crops and orchards as summarized in Table 8.0-34.

The **Jobs Emphasis Alternative** would require the conversion of 97 acres of farmland for wastewater disposal ponds. This acreage consists of irrigated row crops and orchards as summarized in Table 8.0-34.

The **Planning Commission Environmental Review Alternative** would require the conversion of an additional 115 acres of farmland for wastewater disposal ponds. This acreage consists of irrigated row crops and orchards as summarized in Table 8.0-34.

Table 8.0-36: Important Farmlands Potentially Converted to Urban Use, by Equal-Weight Alternative

Important Farmlands Category	No Project	Lower Carbon Future		Compact Plan		Jobs Emphasis Plan		PC Review Plan	
		After 20 Years	After 40 Years	After 20 Years	After 40 Years	After 20 Years	After 40 Years	After 20 Years	After 40 Years
Prime	2,204	2,204	3,319	3,319	4,421	4,413	7,118	6,162	8,372
Statewide Importance	0	0	211	211	238	280	285	251	276
Local Importance	0	0	0	0	0	0	0	0	0
Unique	0	0	269	269	310	335	344	335	345
Grazing	28	28	45	45	54	54	571	54	666
Other	24	24	25	25	39	25	48	38	284
Rural Residential	94	94	73	73	94	75	121	120	156
Total Land Converted	2,349	2,349	3,942	3,942	5,157	5,182	8,489	6,960	10,099

Source: GIS analysis derived from NRCS Important Farmlands Map, 2006.

In addition, each of the Equal-Weight Alternatives and the Lower Carbon Future Alternative would involve the widening of existing roadways, the construction of a regional park near the San Joaquin river which would result in the permanent loss of important agricultural land. The potential acreage would be roughly equivalent for each Equal-Weight Alternative and is summarized in Table 5.11-6 of section 5.11.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.11-4, 5.11-7: Project and cumulative impacts relating to conflicts between ongoing agricultural operations and urban land uses.

Discussion

Development accommodated by the No Project and Equal-Weight Alternatives would place residences and businesses in close proximity to ongoing agricultural operations. It is anticipated that as the city builds out, new agriculture/urban interface conflicts may occur. Such conflicts may give rise to citizen complaints and thereby lead to the conversion of additional agricultural lands to urban uses and/or affect the economic viability of agricultural lands. The draft Policy Document recommends policies and implementation measures that will help minimize agricultural conflicts (Policies NR-2.2, NR-2.4, and NR-2.10) and recommended Mitigation Measure 5.11-2(a) establishing buffering techniques between urban uses and agricultural lands. With implementation of these policies and implementation measures, the project and cumulative impacts relating to conflicts between agricultural operations and urban development are considered **less than significant** and **less than cumulatively considerable**.

Comparison of Alternatives

As the City expands outward under the **No Project Alternative** new development could be subjected to temporary and long-term land use compatibility impacts where urban development abuts ongoing agricultural operations. In some places the limit of potential urban development accommodated by the No Project Alternative follows a roadway or other physical feature which would provide a relatively permanent physical separation between agricultural operations and urban development. The smaller area designated for urban development under the No Project Alternative would result in the least potential for land use conflicts than the Equal-Weight Alternatives.

The 20-year and 40-year growth boundaries of the **Lower Carbon Future Alternative** follow the existing sphere of influence boundary, roadways and the Delta Mendota Canal. The potential for conflicts between urban development and ongoing agricultural operations would be greater than for the No Project Alternative but less than for any of the Equal Weight Alternatives.

The 20-year and 40-year growth boundaries of the **Compact Development Alternative** generally follow roadways and canals. In some instances, such as the area to the south of the City limits between Ward Avenue and the Delta Mendota Canal, the 40-year growth boundary does not follow a roadway. However, it is likely that Elfers Road will be extended to the west to the southerly extension of Baldwin Road where it would provide separation from agricultural land to the south. The proposed high school site north of Zacharias Road would not be buffered from existing agricultural uses. The Compact Development Alternative's use of roadways and canals as buffers would result in less potential agriculture/urban interface conflicts than the Jobs Emphasis or Planning Commission Environmental Review Alternatives, but more so than the No Project Alternative.

The **Jobs Emphasis Alternative** would likely result in the highest potential for conflicts between agriculture and urban development, as the boundary of areas designated for urban development would generally follow property lines rather than physical features such as roadways or canals. This would be especially evident for the area between Del Puerto Creek and State Route 33, the area north of Eucalyptus Avenue in the north east corner of the Study area, and the area east of Sycamore Avenue. Lastly, to the south the boundary between urban development and agriculture follows a property line about midway between Marshall Road and Elfers Road. The combination of larger urban area combined with

boundaries that may result in agriculture abutting urban development results in the highest potential for conflicts between urban development and agriculture of the three Equal-Weight Alternatives.

The **Planning Commission Environmental Review Alternative** designates land for urban development that generally follows physical features that include roadways, Del Puerto Creek and the canals. This alternative has the same southerly boundary mid-way between Marshall Road and Elfers Road where conflicts could occur. Although the Planning Commission Environmental Review Alternative would accommodate the largest population and non-residential development, the boundaries between urban development and surrounding agricultural operations would generally follow physical features and would result in a lower potential for conflicts between agriculture and urban development than the Jobs Emphasis Alternative. However, the potential would be greater than that for the No Project or Compact Development Alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	5	
PC Environmental Review	4	

Impact 5.11-5 Conflict with land currently zoned for agriculture as well as with existing Williamson Act contract lands.

Pursuant to Government Code Section 51243, the City is required to provide for the exclusion of uses other than agriculture, and other than those compatible with agricultural uses, for the duration of a Williamson Act contract. If a city annexes land under Williamson Act contract, the city must succeed to all rights, duties, and powers of the county unless conditions in Government Code Section 512343.5 apply to give the city the option to not succeed the contract.

However, these stipulations do not apply to those lands within the General Plan Study Area because all lands under Williamson Act contract were contracted prior to city annexation. Therefore the City must allow agricultural uses to continue on lands under Williamson Act contracts until those contracts expire or are canceled, which could take up to 10 years after application for nonrenewal is submitted.

As discussed in the Setting and illustrated by Figure 5.11-3, the Study Area contains approximately 5,216 acres of land subject to Williamson Act contracts, with 3,209 non-renewal acres. The majority of acres

lying outside of the existing city limits and within the county is designated and zoned for agricultural use.

The proposed General Plan contains several goals, policies, and action items that would assist in reducing loss of Williamson Act contracted lands and conversion of agriculturally zoned lands to urban land uses. The following list contains those policies and action items that contain specific, enforceable requirements and/or restrictions and corresponding performance standards that assist in reducing (though not fully mitigating) this impact.

The policies listed for impact 5.11-5 will help minimize impacts relating to the permanent conversion of productive agricultural lands. Nevertheless, implementation of any of the Equal-Weight alternatives would result in the permanent loss of productive agricultural land. Therefore, this impact is considered **significant and unavoidable** for the Lower carbon Future and Equal-Weight Alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	3	
PC Environmental Review	5	

5.12 Hazards and Hazardous Materials

Impact 5.12-3: Project impacts associated with potential exposure to persistent pesticides.

Discussion

The surface and shallow-surface soils in the Study Area that historically have been used for intensive agricultural production may contain residual concentrations of environmentally-persistent pesticides or heavy metals (lead or arsenic) that exceed adopted human health thresholds. This impact can be mitigated through the application of Risk-Based Screening Level cleanup targets and the use of common remediation techniques. Implementation of the policies and implementation measures discussed under Impact 5.12-4 will reduce potential impacts to **less than significant**.

Comparison of Alternatives

The **No Project Alternative** will accommodate additional development on agricultural lands as discussed in section 5.11-Agricultural Resources. The remaining agricultural land that could be developed with urban uses (about 2,349 acres) is considerably less than with any of the Equal-Weight Alternatives, as shown in Table 8.0-36. As a result, the No Project Alternative would be expected to have the lowest potential for the exposure of persons to pesticides than the Equal-Weight Alternatives.

The **Lower Carbon Future** and **Equal-Weight Alternatives**. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative.

Accordingly, the potential for exposure to persistent pesticides would be greatest for the Planning Commission Environmental Review Alternative (a 40-year population of about 75,000 on about 10,000 acres of agricultural land) and least for the Lower Carbon Future Alternative (a 40-year population of about 46,000 on about 6,500 acres of agricultural land). However in each case impacts are considered less than significant.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.12-7, 5.12-14: Project and cumulative impacts associated with at-grade rail crossings.

Discussion

The increase in rail traffic expected in the future along with the increase in motor vehicle trips associated with each of the Equal-Weight alternatives will result in an increase in the number of vehicles on City roadways and the potential risk associated with at-grade railroad crossings. As seen in Tables 5.12-8 and 5.12-9 the historical risk associated with at-grade railroad crossings has been relatively low within the Study Area. While the potential increase in train trips in the future is large when compared with current conditions, the risk associated with trains passing through the City is expected to remain proportional to

the population and remain low. The Circulation Diagram (Figure 3.0-9) recommends roadway and intersection improvements which are aimed at maintaining a safe, efficient circulation system for motor vehicles throughout the City. In addition, the draft Policy Document recommends policies HS-7.1 and HS-7.2 to minimize hazards associated with at-grade crossings. By providing multiple routes between the east and west sides of the tracks, and maintaining an acceptable level of service, the potential hazards associated with at-grade crossings is expected to be **less than significant**.

Comparison of Alternatives

The **No Project Alternative** would increase the City's population to approximately 33,196. The No Project Alternative would result in fewer motor vehicle, bicycle and pedestrian trips than any of the Equal-Weight Alternatives. As a result, The No Project Alternative would result in fewer crossings of the tracks and a lower potential risk than the Equal-Weight Alternatives.

The **Lower Carbon Future** and **Equal-Weight Alternatives**. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 which would result in a significant increase in motor vehicle, pedestrian and bicycle traffic. Based on the total PM peak hour motor vehicle trips generated by each Equal-Weight Alternative for the 20-year and 40-year timeframes as shown in Table 8.0-37, the potential for impacts relating to at grade rail crossings would be greatest for the Jobs Emphasis Alternative and least for the Lower Carbon Future Alternative. However in each case impacts are considered **less than significant**.

Table 8.0-37: Total Trip Generation From Land Use Designated by the Equal-Weight Alternatives					
Growth Boundary/Planning Timeframe	Total PM Peak Hour Trips By Alternative				
	No Project	Lower Carbon Future	Compact Development Alternative	Jobs Emphasis Alternative	PC Environmental Review Alternative
20-Year Growth Boundary	18,227	26,057	32,571	49,255	41,485
40-Year Growth Boundary	--	32,571	43,635	63,500	53,388
Source: TJKM, 2010					

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.12-10: Project impacts related to wildland fires.

Discussion

The Jobs Emphasis and Planning Commission Environmental Review alternatives designate land west of Interstate 5 for Mixed-Use Hillside Development within the 40-year growth boundary. The portion of the Study Area west of Interstate 5 is considered to be at “High” and “Moderate” risk to wildland fires (see Figure 5.12-11). The remaining portions of the Study Area are not considered at risk for wildland fires. Policies and implementation measures recommended by the draft Policy Document and discussed under Impact 5.12-10 would ensure adequate fire protection is maintained in these areas. As a result, potential impacts relating to wildland fires are considered **less than significant**.

Comparison of Alternatives

The No Project Alternative, Lower Carbon Future and the Compact Development Alternative do not designate land for urban development west of Interstate 5 in areas at risk for wildland fires. These alternatives would have no impact with respect to wildland fire hazards.

The Jobs Emphasis and Planning Commission Environmental Review Alternatives propose 650 acres of urban development west of Interstate 5 in an area considered to be of moderate to high risk for wildland fires. As a result, these alternatives would pose a higher risk to wildland fires than would the No Project or Compact Development Alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower Carbon Future		1
Compact Development		1
Jobs Emphasis		2
PC Environmental Review		2

Impact 5.12-11: Cumulative impacts associated with local and regional hazards.

Discussion

Hazardous materials, human health, and safety impacts as described in CEQA Appendix G, are generally site-specific and not cumulative by nature. The potential cumulative impacts resulting from proposed development under any of the Equal-Weight Alternatives include, but are not limited to, air quality, noise, water quality, flooding, and fire, as well as exposure to multiple contaminants. The cumulative impacts associated with affected resources, such as air pollution and flooding, are analyzed in sections 5.7—Air Quality and Climate Change, and 5.13—Hydrology and Water Quality.

Comparison of Alternatives

The **No Project Alternative** would result in a smaller population and level of non-residential development than the Equal-Weight Alternatives along with correspondingly lower motor vehicle trips. In addition, the land area covered by the No Project Alternative is less (about 4,900 acres) than any of the Equal-Weight Alternatives. As a result, the potential for cumulative hazards related to hazardous materials, railroad crossings, and emergency access is less. The No Project Alternative is consistent with the adopted Airport Land Use Plans for Patterson Airport and Crows Landing and does not designate development west of Interstate 5 in areas of potential wildland fire risk.

The **Lower Carbon Future Alternative** would result in a smaller population and level of non-residential development than the Equal-Weight Alternatives along with correspondingly fewer motor vehicle trips. In addition, the land area covered by the Lower Carbon Future Alternative is less (about 6,500 acres) than any of the Equal-Weight Alternatives, but greater than for the No Project Alternative. As a result, the potential for cumulative hazards related to hazardous materials, railroad crossings, and emergency access is less. The Lower Carbon Future Alternative is consistent with the adopted Airport Land Use Plans for Patterson Airport and Crows Landing and does not designate development west of Interstate 5 in areas of potential wildland fire risk.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development and population over the 20-year and 40-year timeframes as summarized in Table 8.0-1. The number of people, employees and buildings would increase the exposure of persons and properties to hazards in the area which would be addressed by compliance with applicable state, federal and local regulations as well as the recommended policies and implementation measures provided in the draft Policy Document.

In general, the potential risk to persons and properties would increase with the increased population and level of development. Accordingly the potential cumulative risk would be greatest under the Planning Commission Environmental Review Alternative and least with the Compact Development Alternative.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.13 Hydrology and Water Quality

Impact 5.13-1, 5.13-4 Potential harm to the biological integrity of waterways, violating water quality standards, or otherwise substantially degrading water quality.

Construction and grading activities associated with development accommodated by any of the Equal-Weight alternatives could result in the exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Soil stockpiles and excavated areas would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in off-site receiving waters and eventually the San Joaquin River.

The amount of additional land that may developed with urban uses, and the corresponding potential for impacts, ranges from about 5,000 acres for the Compact Development Alternative to about 9,600 additional acres with the Planning Commission Environmental Review Alternative. Implementation of the policies and programs recommended for impacts 5.13-1 and 5.13-4 will reduce potential impacts to a less than significant level.

The **No Project Alternative** would result in a smaller population and level of non-residential development than the Equal-Weight Alternatives. In addition, the land area covered by the No Project Alternative is less (about 4,900 acres) than any of the Equal-Weight Alternatives. As a result, the potential for the degradation of surface water quality is lowest among the alternatives considered.

The **Lower Carbon Future Alternative** would result in a smaller population and level of non-residential development than the Equal-Weight Alternatives. In addition, the land area covered by the Lower Carbon Future Alternative is less (about 6,500 acres) than any of the Equal-Weight Alternatives, but greater than for the No Project Alternative. As a result, the potential for the degradation of surface water quality is greater than for the No Project Alternative, but less than for the Equal-Weight Alternatives.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development and population over the 20-year and 40-year timeframes as summarized in Table 8.0-1. The number of people, employees and buildings would increase the potential for surface water degradation which would be addressed by compliance with applicable state, federal and local regulations as well as the recommended policies and implementation measures provided in the draft Policy Document.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.13-3 Health risks associated with the use of recycled water.

The delivery of recycled water will occur in plumbing systems completely separate from the potable supply. Human health risks from recycled water arise mainly from the presence of microbial pathogens in sewage or greywater. Both of these water sources contain a broad range of pathogenic microorganisms, and Title 22 requires that the levels of these must be reduced by treatment so that exposure to recycled water does not pose an unacceptable health risk. A diverse range of chemicals may also be present in sewage and greywater, but human health risks from recycled water produced from these sources and intended for non-potable end-uses are low, provided that contaminant management processes (e.g., restrictions on industrial waste discharge) are effective.

The **No Project Alternative** would result in a smaller population and level of non-residential development than the Equal-Weight Alternatives and demand for non-potable water. In addition, the land area covered by the No Project Alternative is less (about 4,900 acres) than any of the Equal-Weight Alternatives. As a result, the potential for the health risks associated with the use of recycled water is lowest among the alternatives considered.

The **Lower Carbon Future Alternative** would result in a smaller population and level of non-residential development than the Equal-Weight Alternatives with a correspondingly lower demand for non-potable water. In addition, the land area covered by the Lower Carbon Future Alternative is less (about 6,500 acres) than any of the Equal-Weight Alternatives, but greater than for the No Project Alternative. As a result, the potential for health risks associated with the use of recycled water is greater than for the No Project Alternative, but less than for the Equal-Weight Alternatives.

The Equal-Weight Alternatives. The Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development and population over the 20-year and 40-year timeframes as summarized in Table 8.0-1. The number of people, employees and buildings would increase the potential for exposure to the health risks associated with non-potable water which would be addressed by compliance with applicable state, federal and local regulations as well as the recommended policies and implementation measures provided in the draft Policy Document.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.13-5 Impacts associated with the construction of storm water conveyance and storage infrastructure into previously un-served areas.

The City does not currently supply storm water drainage to areas outside the City limits; land within the Study Area is largely in agricultural use. Supplying storm drainage infrastructure to expansion areas will require the construction of storm water collection, storage/retention and conveyance infrastructure. Construction of storm water infrastructure would be subject to project-specific environmental review.

The storm water facilities to be constructed would be consistent with the City's existing drainage infrastructure. Accordingly, implementation of the additional distribution system would complement, rather than adversely impact, the City's existing storm water collection system.

The precise location of storm water collection facilities has not been identified at this time, but would generally reflect the schematic system shown on Figures 5.13-8, 5.13-9 and 5.13-10 of section 5.13-Hydrology and Water Quality. These improvements are expected to be constructed on agricultural land within the Study Area that currently provides some measure of biological resource value. Impacts associated the permanent loss of agricultural land are discussed under impact 5.11-1 of section 5.11 Agricultural Resources. Impacts associated with biological resources are discussed in Section 5.10 Biological Resources. Therefore the construction of storm water infrastructure is considered a **potentially significant impact**.

The recommended policies and implementation measures identified for impact 5.13-5 will help reduce construction-related impacts relating to the construction of water supply infrastructure. In addition, the construction of water facilities will be subject to project-specific environmental review.

The City will implement a variety of policies and implementation measures to address the range of potential environmental impacts that may be associated with the construction and operation of storm water facilities. Nonetheless, the ability to mitigate certain potential impacts, such as the permanent loss of agricultural land and habitat for sensitive species, is contingent upon a number of factors including the severity of the impact, existing land use conditions, and the technical feasibility of implementation of the proposed mitigation measures. Because of these contingencies, the potential impacts of construction of new storm water infrastructure will remain significant. Since no additional measures are available to reduce impacts to a less than significant level, this impact is considered **significant and unavoidable** for each of the Equal-Weight Alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.13-6, 5.13-8, 5.13-9 : Project and cumulative impacts associated with increased runoff from urban development.

Discussion

As summarized in Table 8.0-2, development accommodated by the Equal-Weight Alternatives could result in a significant increase in the amount of impervious surfaces within the Study Area which in turn will result in an increase in runoff and the potential for localized and downstream flooding and ponding. This increase in runoff, along with the increase associated with other urban development in the region, could contribute to cumulative flood conditions in the region. Implementation of the City's Flood Hazard regulations in addition to the policies and implementation measures recommended by the draft Policy Document (see the section 5.13-Hydrology and Water Quality, impacts 5.13-6, 5.13-8, and 5.13-9) will reduce potential project and cumulative stormwater runoff impacts to a **less than significant level**.

Comparison of Alternatives

The **No Project Alternative** would result in the least additional developed acreage and corresponding runoff that could potentially result in localized or downstream flooding impacts. Because of the smaller developed area and population, the No Project Alternative would result in less runoff and less potential for localized and downstream flooding than the Equal-Weight Alternatives. New development accommodated by the No Project Alternative would continue to implement previously approved storm drainage improvements (Stoddard and Associates, 2004 City of Patterson Storm Water Management Plan) and to comply with the City's flood management regulations provided in Municipal Code Section 6.44 which will reduce the potential impacts to a less than significant level.

The Lower Carbon Future and Equal-Weight Alternatives. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development acreage, as shown in Table 8.0-2. Accordingly, the amount of surface runoff and the potential to adversely impact localized and downstream flooding would increase proportionately with each alternative and would be greatest for the Planning Commission Environmental Review Alternative and least for the Lower carbon Future Alternative. However, as discussed above, implementation of the recommended policies and implementation measures recommended for impact 5.13-6 will reduce potential impacts to a less than significant level.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Compact Development	2	
Jobs Emphasis	3	
PC Environmental Review	4	

Impact 5.13-7, 5.13-8: Project and cumulative impacts associated with the placement of urban development in areas subject to flooding.

Discussion

Portions of the Study Area are subject to flooding during a 100-year storm event as shown on Figure 5.13-3 of section 5.13-Hydrology and Water Quality. The land within the No Project and Equal-Weight Alternatives subject to potential flooding impacts is summarized on Table 8.0-38.

Table 8.0-38: Areas Within Each Alternative Subject To Flooding (Acres)					
Location	No Project	Lower Carbon Future	Compact Development Alternative	Jobs Emphasis Alternative	PC Environmental Review Alternative
Vicinity of Ward Avenue and east of State Route 33 north of Walnut Avenue	606.8	606.8	606.8	606.8	606.8
North of State Route 33 At Del Puerto Creek	--	--	--	1.3	29.4
Del Puerto Creek/Rogers Rd to Ward Rd/Barros St	--	635.5	635.5	883.0	883.0
South Salado Creek	--	5.5	5.5	162.2	162.2
Total:	606.8	1,247.7	1,247.7	1,653.8	1,681.4
Source: Boyle Engineering/AECOM City of Patterson General Plan Storm Drainage Study, March 2010, Table 4.1					

Comparison of Alternatives

The **No Project Alternative** designates about 606 acres for urban development in the vicinity of Ward Avenue and State Route 33 that lies within the 100-year floodplain as shown on Figure 5.13-3. Implementation of the City's 2004 Storm Water Master Plan, in conjunction with the storm drainage improvements adopted for the Villages of Patterson project in 2006 and continued compliance with the City's flood hazard mitigation requirements contained in Title 17 of Municipal Code will address the potential flood hazard to these areas. New development would also be subject to project-specific environmental review. The No Project Alternative would expose the least development and population to potential flood hazards.

The **Lower Carbon Future and Compact Development Alternatives** designate about 641 additional acres for urban development within the 100-year floodplain that lies north and south of Zacharias Road, and a smaller area immediately north of the Delta Mendota Canal and south of Elfers Road along Salado Creek. Both areas are designated for the development of residential neighborhoods which would accommodate housing, neighborhood-serving retail and public uses such as schools.

The **Jobs-Emphasis Alternative** designates about 1,047 additional acres for urban development within the 100-year flood hazard area. As with the Compact Development Alternative, this acreage is primarily designated Neighborhood Village and would accommodate the same range of uses.

The **Planning Commission Environmental Review Alternative** designates about 1,075 acres of additional land for urban development in areas subject to flooding. The areas potentially affected include those discussed above for the Compact Development and Jobs Emphasis Alternatives, as well as additional acreage north of Zacharias Road and west of Rogers Road. Under the Planning Commission Environmental Review Alternative, the area within the flood hazard area north of Zacharias Road is designated for industrial development. The areas within the flood hazard area south of Zacharias are designated for Neighborhood Village development.

Of the three Equal-Weight Alternatives, the Jobs Emphasis Alternative would result in a greater flood risk to housing and residents followed by the Planning Commission Environmental Review Alternative and the Lower Carbon Future and Compact Development Alternatives.

Implementation of the recommended policies and implementation measures for impact 5.13-7 will help reduce the risk associated with development that may occur in areas subject to flooding. However, the potential impacts associated with floodplain modifications necessary to mitigate potential flooding impacts will not be known until the nature and extent of urban development has been identified through adoption of the General Plan. In addition, approvals necessary from various regulatory agencies, such as the Regional Water Quality Control Board, Department of Fish and Game and the US Army Corps of Engineers cannot be guaranteed. For these reasons potential impacts associated with development in areas subject to flooding are considered **significant and unavoidable**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.14 Visual Resources

Impacts 5.14-1 & 5.13-3: Project and cumulative impacts to scenic quality.

Discussion

Each of the Equal Weight Alternatives would convert rural and agricultural lands to urban development, thereby permanently and substantially altering the visual character and scenic qualities of the Study Area over the 20 and 40-year timeframes. In addition, development accommodated by each of the Equal-Weight Alternatives will significantly alter views from Interstate 5, a State-designated Scenic Highway.

Compliance with existing regulations, including the City's Community Design Guidelines, along with policies and implementation measures recommended by the draft Policy Document (see section 5.4- Visual Resources under impact 5.14-1) will help minimize impacts related to visual and aesthetic resources. Implementation of any of the Equal-Weight Alternatives will nonetheless result in the permanent and significant alteration of the scenic qualities of the area, including views from a State designated Scenic Highway. There are no feasible mitigation measures available to mitigate this change. Accordingly, this impact at the project level is considered **significant and unavoidable** and at the regional level as **cumulatively considerable and significant and unavoidable**.

Comparison of Alternatives

The **No Project Alternative** would result in the development of about 2,200 additional acres with urban uses, almost all of which is agricultural land. New development would continue to be subject to project-specific environmental review as well as compliance with existing City regulations, including the City's Community Design Guidelines which contain provisions to protect the visual qualities of the City. Nonetheless, development accommodated by the 1992 General Plan would also permanently alter the scenic quality of the current General Plan area but to a lesser extent because of the smaller area and quantity of new development.

The **Lower Carbon Future Alternative** would result in the conversion of about 3,423 acres of agricultural land to urban development within the area generally east of the Delta Mendota Canal, south of Zacharias Road, west of Sycamore Avenue and north of the current City limits. The Lower Carbon Future Alternative does not designate land for urban development in the foothills of the Diablo Range west of Interstate 5. Nonetheless, this Alternative would significantly alter views from Interstate 5 (a designated Scenic Highway) and would have a greater impact on scenic quality than the No Project Alternative. Overall, the smaller area involved and the absence of development designated in the foothills would result in less of an impact to the scenic quality of the Study Area than the Compact Development, Jobs Emphasis or Planning Commission Environmental Review alternatives.

The **Compact Development Alternative** would result in the conversion of about 4,970 acres of agricultural land to urban development within the area east of the California Aqueduct, south of Zacharias Road, west of Sycamore Avenue and north of Elfers Road. The Compact Development Alternative does not designate land for urban development in the foothills of the Diablo Range west of Interstate 5. Nonetheless, this Alternative would significantly alter views from Interstate 5 (a designated Scenic Highway) and would have a greater impact on scenic quality than the No Project Alternative. Overall, the smaller area involved and the absence of development designated in the foothills would result in less of an impact to the scenic quality of the Study Area than either the Jobs Emphasis or Planning Commission Environmental Review alternatives.

The **Jobs Emphasis Alternative** would convert roughly 8,771 acres of agricultural land to new urban development which extends north of Zacharias Road and beyond Del Puerto Creek, west of Interstate 5 into the foothills which serve as the visual backdrop to the City. This Alternative would significantly alter views from Interstate 5 (a State designated Scenic Highway). Because the Jobs Emphasis Alternative would result in the conversion of a larger area of agricultural land than either the No Project or Compact Development Alternatives, impacts to the scenic quality of the Study Area would be greater than that associated with the No Project and Compact Development Alternatives, but less than that associated with the Planning Commission Environmental Review Alternative.

The **Planning Commission Environmental Review Alternative** would result in the conversion of about 9,752 acres of agricultural land to urban development within an area generally south of Del Puerto Creek, west of Elm Avenue, north of Marshall Road and west of Interstate 5 in the foothills. As with the Jobs Emphasis Alternative, the Planning Commission Environmental Review Alternative designates land west of Interstate 5 in the foothills of the Diablo Range for urban development and would significantly alter views from Interstate 5. Because of the larger area converted to urban development, scenic quality impacts associated with the Planning Commission Environmental Review Alternative would be greater than those of the other alternatives.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impacts 5.14-2 & 5.14-3: Project and cumulative impacts relating to lighting and glare.

Discussion

Each of the Equal-Weight Alternatives will result in the introduction of additional light and glare from expanded urban development into areas currently dominated by agricultural operations in areas that currently have few if any light sources. In addition, new development resulting from any of the Equal-Weight Alternatives would increase the glare associated with reflective surfaces from urban development. This is considered a project and cumulative impact.

Compliance with existing City regulations, including the City's Community Design Guidelines, along with the policies and implementation measures recommended in the draft Policy Document (see section 5.14- Visual Resources, Impact 5.14-2) would reduce project impacts to a **less than significant level**; however, the cumulative increase in light and glare associated with the Equal-Weight Alternatives, together with regional development, will result in cumulative sources of light and glare that will result in impacts that are considered **cumulatively considerable** and **significant and unavoidable** for all three Equal-Weight Alternatives.

Comparison of Alternatives

Development accommodated by the **No Project Alternative** would result in additional light and glare that would contribute to a cumulative impact for the region, but less so than for the Equal-Weight Alternatives because of the lower amount and area of additional development and associated light sources.

The **Lower Carbon Future** and **Equal-Weight Alternatives** would each accommodate additional population and urban development over correspondingly larger areas. The Lower Carbon Future accommodates a smaller number of dwelling units, non-residential floor area and overall developed area when compared with the Equal-Weight Alternatives. The Planning Commission Environmental Review Alternative would introduce new sources of light and glare to a larger overall area and would therefore result in the highest impact.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
No Project	1	
Lower carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

5.15 Cultural Resources

Impacts 5.15-1 and 5.15-4: Project and cumulative impacts relating to cultural resources.

Discussion

Development activities associated with the No Project and Equal-Weight Alternatives along with regional growth in Stanislaus County could result in the loss and/or degradation of cultural resources and human remains. The Study Area contains previously documented archaeological and historic sites and could contain previously undiscovered sites. The precise location of existing archaeological sites is not well documented and each may actually occur outside the Study Area. However, as new development occurs under any of the Equal-Weight Alternatives, it will be required to mitigate impacts to cultural resources by compliance with the policies and implementation measures recommended in the Draft Policy Document (PR-5.1 - PR-5.4 and PR-6.1 -PR-6.5) as well as implementation measure PR-8. With implementation of these measures, potential project and cumulative cultural resources impacts are considered **less than significant**.

Comparison of Alternatives

The **No Project Alternative** will accommodate additional development on agricultural lands as discussed in section 5.11-Agricultural Resources. The remaining agricultural land that could be developed with urban uses (about 2,349 acres) is considerably less than with any of the Equal-Weight Alternatives, as shown in Table 8.0-36. As a result, the No Project Alternative would be expected to have the lowest potential for the disturbance of previously undiscovered archeological resources than the Equal-Weight Alternatives.

The Lower Carbon Future and Equal-Weight Alternatives. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative.

Portions of the Study Area along Del Puerto Creek and Salado Creek are considered more sensitive to the discovery and disturbance of previously undiscovered archaeological resources. Accordingly, the potential for the disturbance of previously undiscovered archaeological resources would be greatest for the Planning Commission Environmental Review Alternative which covers the largest physical area including the portion of Del Puerto Creek that extends from the mouth of Del Puerto Canyon, which may contain a previously documented site, to State Route 33. The Jobs Emphasis Alternative would have the next most potential to disturb previously undiscovered resources, including those that may exist in Del Puerto Canyon, and least for the Lower Carbon Future Alternative which covers the smallest physical area and does not include urban development along Del Puerto Creek. However in each case impacts are considered **less than significant**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project	1	
Lower Carbon Future	2	
Compact Development	3	
Jobs Emphasis	4	
PC Environmental Review	5	

Impact 5.15-2: Potential project and cumulative impacts to historic sites and structures.

Discussion

The City's 1992 General Plan and 2010 Draft General Plan do not propose specific development projects in the existing developed portion of the City where historic structures and sites have been documented. New development would be subject to project-specific environmental review to determine the potential for impacts to historic sites and structures. Nonetheless, development activities in the Study Area along with regional growth in Stanislaus County could result in the potential disturbance of historic sites and structures. As new development occurs under any of the Equal-Weight Alternatives, it will be subject to project-specific environmental review and will be required to minimize impacts to historic sites and structures through implementation of policies PR-4.1 through PR-4.7 recommended by the draft Policy Document. With implementation of these policies, potential project and cumulative impacts to historic sites and structures are considered **less than significant**.

Comparison of Alternatives

The **No Project Alternative** will accommodate additional development on agricultural lands as discussed in section 5.11-Agricultural Resources. The remaining agricultural land that could be developed with urban uses (about 2,349 acres) is considerably less than with any of the Equal-Weight Alternatives, as shown in Table 8.0-36. As a result, the No Project Alternative would be expected to have the lowest potential for the disturbance of existing historic sites and structures than the Equal-Weight Alternatives.

The **Lower Carbon Future** and **Equal-Weight Alternatives**. The Lower Carbon Future, Compact Development, Jobs Emphasis and Planning Commission Environmental Review Alternatives would each accommodate a significant increase in residential and non-residential development over the 20-year and 40-year timeframes as summarized in Table 8.0-1 and would designate urban development over progressively larger areas than the No Project Alternative.

Accordingly, the potential for the disturbance of historic sites would be greatest for the Planning Commission Environmental Review Alternative (which will accommodate about 10,000 acres of additional development) and least for the Lower Carbon Future Alternative (which will accommodate about 3,300 acres of additional development). However in each case impacts are considered **less than significant**.

Ranking of Alternatives For This Impact		
Alternative	Ranking 1 = Least Impact 4 = Greatest Impact	Significance Of Impact After Mitigation
		Significant and Unavoidable/ Cumulatively Considerable
		Less Than Significant
		Beneficial
No Project		1
Lower carbon Future		2
Compact Development		3
Jobs Emphasis		4
PC Environmental Review		5

Summary Conclusions

Table 8.0-39 compares the potential significant environmental impacts associated with each alternative. In Table 8.0-39 the potentially significant impacts associated with each alternative is ranked on a scale of 1 to 4 with 1 being the alternative with the least impact and 4 being the alternative with the greatest impact. Where one or more alternative would result in the same level of impact they are given the same ranking. Lastly, the colors for each corresponding box signify the level of significance of the impact after applying the recommended policies and implementation measures provided by the policy document and recommended additional mitigation.

As discussed in section 3.0-Description of Equal-Weight Project Alternatives, the City has not identified a preferred land use alternative for the 2010 General Plan. Thus, another useful consideration when comparing the Equal-Weight Alternatives is the extent to which each reduces impacts which were determined to be significant and unavoidable and cumulatively considerable and significant and unavoidable in sections 5.1 through 5.15 of this EIR. Table 8.0-40 ranks each of the Equal-Weight Alternatives with respect to their contribution to each of the significant and unavoidable impacts using the same scale that used in Table 8.0-38.

Based upon the evaluation described in this section, and summarized in Tables 8.0-39 and 8.0-40, the No Project Alternative would be the environmentally superior alternative, as compared against the Lower Carbon Future and each of the Equal-Weight Alternatives. In accordance with Section 15126.6 (e)(2), if the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. The next most environmentally superior alternative is the Lower Carbon Future Alternative followed by, the Compact Development Alternative, the Jobs Emphasis and Planning Commission Environmental Review Alternative.

Table 8.0-39: Comparison Of Alternatives

Ranking of Alternatives				Impact Significance After Mitigation		No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review		
Least Impact	1	2	3	Greatest Impact	4						Significant and Unavoidable/Cumulatively Considerable	
											Less Than Significant	
											Beneficial	
Land Use (EIR Section 5.1)												
Impacts 5.1-2 and 5.1-5: Project and cumulative impacts relating to consistency with the Stanislaus County general plan.						1	2	3	4	5		
Impacts 5.1-4 and 5.1-5: Project and cumulative impacts relating to consistency with the rules and procedures of the Stanislaus Local Agency Formation Commission.						2	1	3	3	3		
Population, Housing, Employment (EIR Section 5.2)												
Impacts 5.2-1 & 5.2-3: Project and cumulative population, housing and employment increases will result in physical impacts to the environment.						1	2	3	4	5		
Impact 5.2-3: Project and cumulative population and employment increases will exceed projections used by StanCOG for regional planning.						1	2	3	4	5		
Public Services and Utilities (EIR Section 5.3)												
Impact 5.3-1: Project and cumulative impacts to fire protection and emergency services.						1	2	3	4	5		
Impact 5.3-2: Project and cumulative impacts relating to law enforcement.						1	2	3	4	5		
Impact 5.3-3: Project and cumulative impacts relating to parks.						1	2	3	4	5		
Impact 5.3-4: Project and cumulative impacts relating to school facilities.						1	2	3	4	5		
Impact 5.3-5: Project and cumulative impacts to health care.						1	2	3	4	5		
Impact 5.3-6, 5.3-7: Project and cumulative impacts relating to solid waste disposal.						1	2	3	4	5		
Impact 5.3-11 Impacts related to the construction of public services.						1	2	3	4	5		
Water Resources (EIR Section 5.4)												
Impact 5.4-1, 5.4-6: Impacts relating to water supply.						1	2	3	4	5		
Impact 5.4-2: Impacts relating to the construction of water supply infrastructure.						1	2	3	4	5		
Impact 5.4-3: Cones of depression adversely impacting surrounding wells.						1	2	3	4	5		
Impact 5.4-4: Treatment of groundwater and surface water will require the disposal of brine as a by-product of water treatment.						1	2	3	4	5		

Table 8.0-39: Comparison Of Alternatives

Ranking of Alternatives		Impact Significance After Mitigation		No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Least Impact	Greatest Impact	Significant and Unavoidable/Cumulatively Considerable						
		Less Than Significant						
		Beneficial						
1	2	3	4					
Impact 5.4-5 Cumulative reduction of water available for agricultural operations.				1	2	3	4	5
<i>Wastewater (EIR Section 5.5)</i>								
Impact 5.5-1: Project impacts relating to an increase in treatment capacity.				1	2	3	4	5
Impact 5.5-2: Impacts relating to the construction of wastewater collection and disposal infrastructure.				1	2	3	4	5
Impact 5.5-3: Project impacts – increased treatment capacity will require an amendment of the City's Wastewater Discharge Permit.				1	2	2	2	2
<i>Transportation and Circulation (EIR Section 5.6)</i>								
Impacts 5.6-1, 5.6-3, 5.6-5 Project impacts – increased traffic will adversely impact intersection and roadway levels of service in the 20 year timeframe.				1	2	3	4	5
Impacts 5.6-2, 5.6-4, 5.6-6: Increased traffic will adversely impact roadway levels of service in the 40 year timeframe.				1	2	3	4	5
Impact 5.6-7: Project impacts relating to truck traffic.				1	2	3	4	5
Impacts 5.6-9, 5.6-17: Project and cumulative traffic could adversely impact the level of service roadways under the jurisdiction of other agencies.				1	2	2	2	2
Impacts 5.6-10, 5.6-19 Project and cumulative impacts to transit facilities.				1	2	3	5	4
Impacts 5.6-11, 5.6-19 Project and cumulative impacts to pedestrian facilities.				1	2	3	5	4
Impacts 5.6-12, 5.6-19 Project and cumulative impacts to bicycle facilities.				1	2	3	5	4
Impact 5.6-14, 5.6-19 Project and cumulative impacts relating to traffic hazards.				1	2	3	5	4
Impact 5.6-15 Impacts relating to roadway construction.				1	2	3	5	4
<i>Air Quality (EIR Section 5.7)</i>								
Impact 5.7-2: Project air quality impacts associated with sensitive receptors.				1	2		3	4
Impact 5.7-3: Project impacts relating to the emission of ozone precursors.				1	2	3	5	4
Impacts 5.7-4, 5.7-8: Project and cumulative impacts relating to consistency with the Extreme Ozone Attainment Demonstration Plan.				1	2	3	4	5
Impact 5.7-5 Carbon monoxide hot spots.				1	2	3	5	4
Impact 5.7-6: Cumulative impacts relating to climate change – greenhouse gas emissions.				2	1	3	5	4

Table 8.0-39: Comparison Of Alternatives

Table 8.0-39: Comparison Of Alternatives												
Ranking of Alternatives				Impact Significance After Mitigation		No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review		
Least Impact	1	2	3	Greatest Impact	4						Significant and Unavoidable/Cumulatively Considerable	
											Less Than Significant	
											Beneficial	
Impact 5.7-7: Cumulative impacts, risk to people and property associated with the effects of climate change.						2	1	1	1	1		
Noise (EIR Section 5.8)												
Impact 5.8-1: Project noise impacts associated with construction activities.						1	2	3	4	5		
Impact 5.8-2: Traffic noise.						1	2	3	5	4		
Impact 5.8-3: Project noise impacts associated with rail traffic.						1	2	3	4	5		
Impact 5.8-5: Project impacts relating to stationary noise sources.						1	2	3	4	5		
Impact 5.8-7 Cumulative increase in noise conflicts in the region.						1	2	3	4	5		
Geology and Soils (EIR Section 5.9)												
Impact 5.9-1: Project impacts associated with seismic events.						1	2	3	4	5		
Impact 5.9-2: Project impacts associated with landslides and slope stability.						1	1	1	2	2		
Impact 5.9-3: Project impacts associated with soil erosion.						1	2	3	4	5		
Impact 5.9-4: Project impacts relating to expansive and unstable soils.						1	2	3	4	5		
Impact 5.9-5: Project impacts relating to bridge construction.						1	2	3	4	5		
Biology (EIR Section 5.10)												
Impacts 5.10-1, 5.10-2, 5.10-4, 5.10-5, 5.10-7, 5.10-8: Project impacts resulting in the permanent loss of habitats.						1	2	3	4	5		
Impacts 5.10-9, 5.10-10, 5.10-11, 5.10-12, 5.12-13, 5.10-14, 5.10-15, 5.10-16, 5.10-17, 5.10-18 Project impacts to State and federally-listed plant and wildlife species.						1	2	3	4	5		
Impact 5.10-19: Project impacts to downstream water quality.						1	2	3	4	5		
Impact 5.10-20: Cumulative impacts to sensitive biological resources.						1	2	3	4	5		
Agricultural Resources (EIR Section 5.11)												
Impacts 5.11-1, 5.11-2, 5.11-3: Permanent loss of prime farmland and other important farmland.						1	2	3	4	5		
Impacts 5.11-4, 5.11-7: Project and cumulative impacts relating to conflicts between ongoing agricultural operations and urban land uses.						1	2	3	4	5		

Table 8.0-39: Comparison Of Alternatives

Ranking of Alternatives				Impact Significance After Mitigation		No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review		
Least Impact	1	2	3	Greatest Impact	4						Significant and Unavoidable/Cumulatively Considerable	
											Less Than Significant	
											Beneficial	
Impact 5.11-5 Conflicts with land zoned for agriculture as well as existing Williamson Act contracts.						1	2	3	4	5		
Hazards and Hazardous Materials (EIR Section 5.12)												
Impact 5.12-3: Project impacts associated with potential exposure to persistent pesticides.						1	2	3	4	5		
Impacts 5.12-7, 5.12-14: Project and cumulative impacts associated with at-grade rail crossings.						1	2	3	4	5		
Impact 5.12-9: Project impacts related to emergency access to both sides of the railroad tracks.						1	2	3	4	5		
Impact 5.12-10: Project impacts related to wildland fires.						1	1	1	2	2		
Impact 5.12-11: Cumulative impacts associated with local and regional hazards.						1	2	3	4	5		
Hydrology and Water Quality (EIR Section 5.13)												
Impacts 5.13-1, 5.13-4, 5.13-7: Project and cumulative impacts associated with increased runoff from urban development.						1	2	3	4	5		
Impact 5.13-3 Health risks associated with the use of recycled water.						1	2	3	4	5		
Impact 5.13-5 Impacts relating to the construction of storm drainage infrastructure.						1	2	3	4	5		
Impact 5.13-6, 5.13-8, 5.13-9: Project and cumulative impacts associated with the placement of urban development in areas subject to flooding.						1	2	3	4	5		
Visual and Aesthetic Resources (EIR Section 5.14)												
Impacts 5.14-1, 5.14-3: Project and cumulative impacts to scenic quality.						1	2	3	4	5		
Impacts 5.14-2, 5.14-3: Project and cumulative impacts relating to light and glare.						1	2	3	4	5		
Cultural Resources (EIR Section 5.15)												
Impacts 5.15-1, 5.15-4: Project and cumulative impacts relating to cultural resources.						1	2	3	4	5		
Impact 5.15-2: Potential project and cumulative impacts to historic sites and structures.						1	2	3	4	5		
Sum Total of Ranking (higher number denotes greater level of impact):						67	123	181	252	292		

**Table 8.0-40: Ranking of Alternatives With Respect to
Significant and Unavoidable Impacts**

Impact Topic	Ranking 1 = Least Impact 4 = Greatest Impact				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Impact 5.1-2 Inconsistency with policies and development regulations of the Stanislaus County General Plan. This impact is considered significant and unavoidable.	1	2	3	4	5
Impact 5.1-4 Inconsistencies with adopted policies, rules and procedures of the Stanislaus Local Agency Formation Commission. This impact is considered significant and unavoidable.	2	1	3	4	5
Impact 5.1-5 Cumulative land use changes with resulting inconsistencies with adopted plans and policies. Moreover, each alternative accommodates a level of development and population that exceeds the level anticipated by adopted plans and policies. These impacts are considered significant and unavoidable.	2	1	3	4	5
Impact 5.2-1 Increase in population, housing and employment which in turn will result in direct and indirect physical impacts to the environment. This impact is considered significant and unavoidable.	1	2	3	4	5
Impact 5.2-3: Each of the Equal-Weight Alternatives will accommodate an increase in population and employment that will exceed the projections used for planning purposes by the Stanislaus Council of Governments.	1	2	3	4	5
Impact 5.3-5 Cumulative impacts to health care facilities.	1	2	3	4	5
Impact 5.3-6, 5.3-7 Cumulative impacts to solid waste disposal capacity.	1	2	3	4	5
5.3-11 Construction of new and expanded public facilities.	1	2	3	4	5
Impact 5.4-1 Water demand.	1	2	3	4	5
Impact 5.4-2. Construction of water supply conveyance infrastructure into previously unserved areas.	1	2	3	4	5
Impact 5.4-3: Cones of depression may adversely impact surrounding wells.	1	2	3	4	5
Impact 5.4-6 Reduction of water available for agricultural operations.	1	2	3	4	5
Impact 5.5-2. Extension of wastewater collection infrastructure into previously unserved areas.	1	2	3	4	5

Table 8.0-40: Ranking of Alternatives With Respect to Significant and Unavoidable Impacts

Impact Topic	Ranking 1 = Least Impact 4 = Greatest Impact				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Impact 5.5-3 Required amendment to wastewater discharge permit.	1	2	3	4	5
Impacts 5.6-1, 5.6-3, 5.6-5: Impacts to intersections and roadway levels of service in the 20 year timeframe.	1	2	3	5	4
Impact 5.6-2, 5.6-4, 5.6-6 Impacts to roadway segments in 40 year timeframe.	1	2	3	5	4
Impact 5.6-7, 5.6-19: Project and cumulative impacts relating to truck traffic.	1	2		2	2
Impacts 5.6-8, 5.6-16 Impacts to roadways of other jurisdictions.	1	2	2	2	2
Impacts 5.6-9, 5.6-17 Impacts to level of service on Interstate 5.	1	2	3	5	4
Impact 5.6-10, 5.6-19 Project and cumulative increase in the demand for transit facilities.	1	2	3	5	4
Impact 5.6-11, 5.6-19 project and cumulative increased demand for pedestrian facilities.	1	2	3	5	4
Impact 5.6-12, 5.6-19 Project and cumulative increased demand for bicycle facilities.	1	2	3	5	4
Impact 5.6-14 Increased potential for traffic hazards.	1	2	3	5	4
Impact 5.6-15 Roadway construction impacts. ¹	1	2	3	5	4
Impact 5.7-3 Emission of ozone precursors.	1	2	3	5	4
Impact 5.7-4, 5.7-8 Consistency with assumptions used in the Extreme Ozone Attainment Demonstration Plan.	1	1	2	3	4
Impact 5.7-5 Carbon monoxide hot spots.	1	2	3	5	4
Impact 5.7-6 Emission of greenhouse gases.	2	1	3	5	4
Impact 5.7-7 Risk to people and property from climate change.	2	1	1	1	1
Impact 5.8-2 Traffic noise.	1	2	3	5	4
Impact 5.8-5 Noise impacts relating to stationary sources.	1	2	3	4	5
Impact 5.8-7 Cumulative increase in noise conflicts.	1	2	3	4	5
Impact 5.10-20 Cumulative impacts to biological resources.	1	2	3	4	5
Impacts 5.11-1, 5.11-2, 5.11-3 Permanent loss of important farmland.	1	2	3	4	5
5.11-5 Conflicts with agricultural zoning and Williamson Act contracts.	1	2	3	4	5
5.13-5 Impacts associated with construction of storm drainage infrastructure.	1	2	3	4	5

Table 8.0-40: Ranking of Alternatives With Respect to
Significant and Unavoidable Impacts

Impact Topic	Ranking 1 = Least Impact 4 = Greatest Impact				
	No Project	Lower Carbon Future	Compact Development	Jobs Emphasis	Planning Commission Environmental Review
Impact 5.13-7, 5.13-8: Project and cumulative impacts associated with the placement of urban development in areas subject to flooding.	1	2	3	4	5
Impacts 5.14-1, 5.14-3 Project and cumulative impacts to scenic quality.	1	2	3	4	5
Impacts 5.14-2, 5.14-3 Project and cumulative impacts related to light and glare.	1	2	3	4	5
Total:	42	73	110	160	172

References

City of Patterson 2010 Draft General Plan

California Attorney General – Climate Change, the California Environmental Quality Act, and General Plan Updates: Straightforward Answers to Some Frequently Asked Questions,
http://ag.ca.gov/globalwarming/pdf/CEQA_GP_FAQs.pdf

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