Draft Environmental Impact Report

Union Crossing Project



Lead Agency:

City of Manteca
Community Development Department,
Planning Division

Prepared by:

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May 2009

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1 INTRODUCTION

1.1 PURPOSE OF THE EIR

The City of Manteca has prepared this draft environmental impact report (DEIR) to disclose the potential environmental effects of the proposed Union Crossing project (project). This DEIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended through Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). An EIR is a full disclosure, public information document in which the significant environmental impacts of a project are evaluated, feasible measures to mitigate significant impacts are identified, and alternatives to the project that can reduce or avoid significant environmental effects are considered.

An EIR is an informational document used in the planning and decision-making process by the lead agency and responsible and trustee agencies. The lead agency is the public agency with primary responsibility over the project. In accordance with State CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." In the case of the proposed project, the lead agency is the City of Manteca, who will be responsible for overall approval.

The purpose of an EIR is not to recommend approval or denial of a project. CEQA requires decision-makers to balance the benefits of a project against its unavoidable environmental effects in deciding whether to carry out a project. The lead agency will consider the DEIR, comments received on the DEIR, and responses to those comments before making a decision. If environmental impacts are identified as significant and unavoidable, the lead agency may still approve the project if it determines that the social, economic, or other benefits outweigh the unavoidable impacts. The lead agency would then be required to adopt a "Statement of Overriding Considerations" that discuss the specific reasons for approving the project, based on information in the EIR and other information in the record.

1.2 SCOPE OF THE EIR

Pursuant to Section 15143 of the State CEQA Guidelines, a lead agency may limit the EIR's discussion of environmental effects to specific issues where significant effects on the environment may occur. The City of Manteca used a variety of information to determine which issue areas would result in potentially significant or significant effects on the environment. This information included field surveys of the project site, review of project characteristics, comments from public and agency consultation, and comments received on the notice of preparation (NOP). An NOP was circulated to public agencies and the public on September 19, 2008, for a 30-day review period. A public scoping meeting was held on October 2, 2008 at 3 p.m. in the Manteca City Council Chambers. Comments received on the NOP are included in Appendix A.

Based on the NOP, public comments on the NOP, and preliminary analysis, the project would have less-than-significant impacts on mineral resources, recreation, and school services or facilities as discussed below. These issues will not be evaluated further in this DEIR.

1.3 EFFECTS FOUND NOT TO BE SIGNIFICANT

This section contains a discussion of the environmental effects found not to be significant pursuant to the State CEQA Guidelines Section 15128, which provides that "[a]n EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

The following effects on mineral resources and recreation were found not significant and are not included in the detailed analysis of potential project impacts.

1.3.1 MINERAL RESOURCES

The project site is not located in an area of known mineral resources, nor are any expected to be encountered during project development (City of Manteca 2003a). As such, no impacts related to mineral resources are anticipated and they are not evaluated further in this DEIR.

1.3.2 RECREATION

The project is a commercial development that would provide new employment opportunities. The project does not include proposals for new housing and is not expected to bring a substantial number of new residents to the area because an adequate employment base is available to serve the project. Therefore, the project would have no impact on demands for park or other recreational facilities and would not result in accelerated physical deterioration of existing recreational facilities. The project would not result in the need for new or expanded recreational facilities and no impacts on these facilities would occur. As a result, recreational impacts of the project are not evaluated further in this DEIR.

1.3.3 SCHOOL SERVICES OR FACILITIES

The project does not include proposals for new housing and is not expected to bring a substantial number of new residents to the area because an adequate employment base is available to serve the project. The project would not generate students or increase demands for school services or facilities. Therefore, no impacts on school services or facilities would occur. This issue area will not be evaluated further in the EIR.

1.4 LEAD, FEDERAL, RESPONSIBLE, AND TRUSTEE AGENCIES

The City of Manteca is the lead agency with primary authority for approval of the project. Additional agencies (listed below) with potential permit or approval authority over the project, or elements thereof, will have the opportunity to review this document during the public review period, and will use this information in consideration and issuance of any permits required for the project.

Public agencies with known or potential permits, other approvals, or jurisdiction by law over resources on the site include but may not be limited to:

Lead Agency

- City of Manteca (project approval)

Federal Agencies

- U.S. Army Corps of Engineers (USACE) (potential Section 404 of Clean Water Act permit)
- U.S. Fish and Wildlife Service (USFWS) (potential federal Endangered Species Act permit)

State Responsible Agencies

- State of California Regional Water Quality Control Board (RWQCB) (National Pollutant Discharge Elimination System permit)

State Trustee Agencies

- California Department of Fish and Game (DFG) (Streambed Alteration Agreement, potential California Endangered Species Act permit)

Local Responsible Agencies

- San Joaquin Valley Air Pollution Control District (Authority to construct and permit to operate)
- San Joaquin County Local Agency Formation Commission (LAFCo) (approval of annexation)
- South San Joaquin Irrigation District
- San Joaquin Council of Governments (SJCOG) (Implementation of *San Joaquin County Multi-species Habitat Conservation and Open Space Plan* [SJMSCP])

1.5 PUBLIC REVIEW PROCESS

1.5.1 DOCUMENT CIRCULATION

Consistent with the requirements of CEQA, a good faith effort has been made during the preparation of this DEIR to contact affected agencies, organizations, and individuals who may have an interest in the project. As described above, this effort included the circulation of the NOP on September 19, 2008 and a public scoping meeting in the City of Manteca on October 2, 2008. In addition, early consultation with relevant agencies, organizations, and individuals assisted in the preparation of this DEIR. The City of Manteca has filed a notice of completion (NOC) with the Governor's Office of Planning and Research, State Clearinghouse, indicating that this DEIR has been completed and is available for review and comment by the public. This DEIR is being circulated for a 45-day public review period, during which time written comments will be received by the City of Manteca at the following address:

Erika Hollander, Manteca Community Development
City of Manteca
1001 W. Center Street
Manteca, CA 95337
Facsimile: (209) 825-2349
Email: ehollander@ci.manteca.ca.us

Copies of the DEIR can be found at the following addresses:

Manteca City Clerk
1001 W. Center Street
Manteca, CA 95337

City of Manteca Community Development Department
1001 W. Center Street
Manteca, CA 95337

Manteca Branch Library
Stockton–San Joaquin County Public Library
320 West Center Street
Manteca, CA 95336

1.5.2 PUBLIC MEETING

A public meeting on this DEIR will also be held at the Manteca City Council Chambers at 7 p.m. on Tuesday, May 26, 2009, during the review period, to receive oral comments on the document. A public notice of availability of the DEIR, which also includes the date, time, and specific location for the public meeting, has been published in the *Manteca Bulletin*.

1.6 TERMINOLOGY USED IN THE EIR

This DEIR includes the following terminology to denote the significance of environmental impacts of the project:

- **Less-than-significant Impact:** A less-than-significant impact is one that would not result in a substantial and adverse change in the environment. This impact level does not require mitigation.

- **Significant Impact:** CEQA Section 21068 defines a significant impact as one that causes "a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the project." Feasible mitigation measures or alternatives to the project must be considered to reduce the magnitude of significant impacts to less-than-significant levels.

- **Potentially Significant Impact:** A potentially significant impact is one that, if it were to occur, would be considered a significant impact as described above; however, the occurrence of the impact cannot be definitely determined. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact and would require mitigation.

- **Significant and Unavoidable Impact:** A significant and unavoidable impact is one that would result in a substantial adverse effect on the environment that cannot be feasibly mitigated to a less-than-significant level. A project with significant unavoidable impacts can still be approved, but the city would be required to prepare a statement of overriding considerations, pursuant to State CEQA Guidelines Section 15093, explaining the social, economic, or other benefits of the project that outweigh the significant environmental impacts.

- **Thresholds of Significance:** A criterion to define at what level an impact would be considered significant. A criterion is defined based on examples found in CEQA or the State CEQA Guidelines, scientific and factual data relative to the lead agency jurisdiction, views of the public in affected areas, the policy/regulatory environment of affected jurisdictions, and other factors.

1.7 EIR ORGANIZATION

This DEIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Section 4.1, "Land Use").

Chapter 1, "Introduction." Chapter 1 describes the purpose and organization of the DEIR, context, and terminology used in the DEIR.

Chapter 2, "Executive Summary." This section summarizes the project description, alternatives to the project, significant environmental impacts that would result from the project, and mitigation measures proposed to reduce or eliminate those impacts.

Chapter 3, "Project Description." Chapter 3 describes project location; background; proposed actions by the applicant; lead, federal, trustee, and responsible agency actions; project characteristics; and project objectives. This chapter also describes project construction and regulatory requirements.

Chapter 4, "Existing Conditions, Thresholds of Significance, Environmental Impacts, and Mitigation Measures." For each environmental issue area, this chapter describes the existing environmental setting, discusses the environmental impacts associated with the proposed project, and identifies mitigation for the impacts.

Chapter 5, "Cumulative Impacts." This chapter contains a discussion of cumulative impacts that would result from the proposed project in combination with reasonably foreseeable projects in the project area.

Chapter 6, "Other CEQA-Mandated Sections." The potential for the project to foster economic or population growth or remove obstacles to growth are evaluated in Chapter 6. Project and cumulative impacts that cannot be mitigated to a less-than-significant level are also documented in this chapter.

Chapter 7, "Alternatives to the Project." This chapter describes alternatives to the project at a level consistent with State CEQA Guidelines Section 15126.6(d). This chapter presents brief descriptions of alternatives that could mitigate the project's environmental impacts while meeting most of the project's objectives. This chapter also describes alternatives previously considered and rejected.

Chapter 8, "References." This chapter sets forth a comprehensive listing of all sources of information used in the preparation of the DEIR, including agencies or individuals consulted during preparation of the DEIR.

Chapter 9, "Report Preparation." This chapter identifies the DEIR authors and consultants who provided analysis in support of the DEIR's conclusions.

Appendices. Appendices contain various technical reports, letters, official publications, summarized or otherwise used for preparation of the DEIR.

1.8 TECHNICAL STUDIES USED IN THE EIR

Several studies or reports have been prepared in support of the analysis presented in this DEIR and are included in the appendices, where appropriate. In addition, the following studies and reports were prepared in connection with the project and are available at the City of Manteca, Community Development Department, 1001 West Center Street, Manteca, California 95337.

- *Draft Environmental Impact Report, Volumes 1 and 2, Manteca General Plan 2023* (City of Manteca 2003b)
- *City of Manteca General Plan 2023 Policy Document* (City of Manteca 2003a)
- *Geotechnical Services Report, Union Crossing Commercial Development* (Kleinfelder 2007)
- *Union Crossing Health Risk Assessment* (ENSR 2008)
- *Union Crossing Traffic Study* (Fehr & Peers 2009)
- *Union Crossing Lighting Analysis* (Auerbach Glasow French 2009)
- *Phase I Environmental Site Assessment, 19709 & 20109 South Union Road* (Bureau Veritas 2007a)
- *Phase I Environmental Site Assessment Report, Union Commercial APNs 226-160-04, -05, and -017(Condor Earth Technologies 2007)*
- *Limited Subsurface Investigation Report* (Bureau Veritas 2007b)

1.9 LIST OF ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used in the DEIR.

µg/l	micrograms per liter
µPa	micropascals
29 CFR	Code of Federal Regulations Title 29
AB	Assembly Bill
ADT	average daily traffic
afy	acre feet per year
AIA	Air Impact Assessment
ANSI	American National Standards Institute
APCO	Air Pollution Control Officer
AQAPs	air quality attainment plans
ARB	California Air Resources Board
as NO_3	nitrate
ASTs	aboveground storage tanks
Basin Plan	basin plan for the Sacramento–San Joaquin River Basins
Bay-Delta Plan	1995 Bay-Delta Water Quality Control Plan
bgs	below the ground surface
BMPs	best management practices
BSC	California Building Standards Commission
CAA	federal Clean Air Act
Cal/EPA	California EPA
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCAT	California Climate Action Team
CCIC	Central California Information Center
CCR	California Code of Regulations
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second

CGS	California Geological Survey
CH4	methane
CHP	California Highway Patrol
City	City of Manteca
City General Plan	*City of Manteca General Plan 2023*
CIWMA	California Integrated Waste Management Act
CIWMB	California Integrated Waste Management Board
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
CO2e	CO2 equivalent
County	San Joaquin County
County General Plan	*2010 San Joaquin County General Plan*
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CVP	Central Valley Project
CWA	Clean Water Act
CY	cubic yards
dB	decibel
dB/DD	dB per doubling of distance
dBA	A-weighted sound levels
DBCP	dibromochloropropane
DEIR	draft environmental impact report
DEIR	draft environmental impact report
Delta	Sacramento–San Joaquin Delta
Delta	Sacramento–San Joaquin Delta
DFG	California Department of Fish and Game
diesel PM	PM from diesel-fueled engines
DPH	California Department of Public Health
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EDB	Ethylene dibromide
EDR	Environmental Data Resources
EMT	Emergency Medical Technician

EPA	U.S. Environmental Protection Agency
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESJCGB	Eastern San Joaquin County Groundwater Basin
FCOC	French Camp Outlet Canal
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
FTA	Transit Administration
g/hp-hr	grams per horsepower-hour
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GC	General Commercial
GHG	greenhouse gas
gpd	gallons per day
gpm	gallons per minute
GWP	global warming potential
HAPs	hazardous air pollutants
HRA	health risk assessment
HSC	Health and Safety Code
HVAC	heating, ventilation and air conditioning
Hz	hertz
in/sec	inches per second
IPCC	United Nations Intergovernmental Panel on Climate Change
ISR	Indirect Source Review
IWMP	Integrated Waste Management Plan
kWh	kilowatt-hours
LAFCo	Local Agency Formation Commission
lb	pounds
LCFS	Low Carbon Fuel Standard
LDL	Larson Davis Laboratories
L_{dn}	Day-Night Noise Level
LDR	Low Density Residential
L_{eq}	Equivalent Noise Level
LIM	Land Inventory and Monitoring
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level

L_n	Statistical Descriptor
LOS	Level of Service
M	magnitude
MCL	maximum contaminant level
MFD	Manteca Fire Department
mgd	million gallons per day
MLD	most likely descendant
MMT	million metric tonnes
MS4s	Municipal Separate Storm Sewer Systems
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEAP	Natural Events Action Plan
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO	nitric oxide
NO2	nitrogen dioxide
NOC	notice of completion
NOI	notice of intent
NOP	notice of preparation
NOX	oxides of nitrogen
NPDES	National Pollutant Discharge Eliminations System
NRCS	U.S. Natural Resources Conservation Service
OADP	Ozone Attainment Demonstration Plan
OAL	Office of Administrative Law
^oF	Fahrenheit
OPR	Governor's Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PCE	perchloroethylene
pCi/L	picoCuries of radon per liter of air
PG&E	Pacific Gas and Electric Company
PM10	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
PM2.5	fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less

Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	part per million
PPV	peak-particle-velocity
PRC	Public Resources Code
project	Union Crossing project
R-1	Single-Family Residential
RACT	reasonable available control technology
RFC	Research and Forecasting Center
RMS	root mean square
ROG	reactive organic gases
RWD	Reports of Waste Discharge
RWQCB	regional water quality control board
SB	Senate Bill
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition”
Scoping Plan	Climate Change Proposed Scoping Plan
SCWSP	South County Water Supply Project
SDMP	*City of Manteca Storm Drain Master Plan*
SEL	Sound Exposure Level
SENEL	Single Event Noise Exposure Level
SIP	State Implementation Plan
SJCOG	San Joaquin Council of Governments
SJMSCP	*San Joaquin County Multi-species Habitat Conservation and Open Space Plan*
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLM	sound level meter
SMTS	South Manteca Trunk Sewer
SO2	sulfur dioxide
SR	State Route
SSJID	South San Joaquin Irrigation District
SWAT	special weapons and tactics
SWP	State Water Project
SWPPP	storm water pollution protection plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
tpd	tons per day

tpy	tons per year
TRUs	Transport Refrigeration Units
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USTs	underground storage tanks
UWMP	Urban Water Management Plan
VdB	vibration decibels
VDECS	Verified Diesel Emission Control Strategies
VOCs	volatile organic compounds
WQCF	Wastewater Quality Control Facility
WSA	water supply assessment

2 EXECUTIVE SUMMARY

2.1 INTRODUCTION

The Union Crossing project (project) is a proposal by William Filios to develop a 48.5-acre site for a variety of commercial uses and to annex approximately 65 acres to the city. The project site is located just outside of the southern portion of the city of Manteca and is owned by a number of private landowners. The environmental analysis in this draft EIR (DEIR) is based on an evaluation of how environmental conditions would be expected to change as a result of implementing the project. Public comments on the DEIR will provide important input for the City of Manteca's (City's) decision on the proposed project. This section summarizes the information contained in the DEIR, including a summary of the project description, environmental impacts, mitigation measures, and alternatives.

2.2 THE EIR PROCESS

The City of Manteca, as lead agency or public agency that has the primary authority to approve the project, must certify the EIR as being adequate according to the California Environmental Quality Act (CEQA). The City must consider the EIR's environmental information when taking action on the project. Other public agencies with approvals of the project are considered responsible agencies; these agencies would consider the environmental effects of the project based on this DEIR. The purpose of an EIR is to identify and assess the environmental impacts that would directly or indirectly occur as a result of the project.

The DEIR has been released for public review to receive comments from interested parties on its completeness and adequacy in disclosing the environmental effects of the project. Written responses to significant environmental points raised in comments will be prepared and published. Together, the DEIR, comments received on the DEIR, and the responses to comments will constitute the final EIR.

2.3 SUMMARY OF THE PROJECT DESCRIPTION

2.3.1 PROJECT LOCATION

The project site is located just outside of the southern portion of city of Manteca and immediately south of State Route (SR) 120, approximately 2 miles west of SR 99, and 4 miles east of Interstate 5. The site is generally bounded by an SR 120 eastbound exit ramp to the north; Woodward Avenue, agricultural land, and rural residential homesites to the south; South Union Road and residential and commercial land uses (currently under construction) to the east; and agricultural land and a residential homesite to the west (Exhibit 3-2). Refer to Chapter 3, "Project Description," for project vicinity and location exhibits.

2.3.2 OBJECTIVES OF THE PROJECT

In general, the purpose of the proposed project is to develop a shopping center that would include restaurant and retail uses, all of which would contribute to the economic base of the City of Manteca and respond to underserved demand for such uses within a rapidly growing area. Although not currently proposed, some retail uses may be replaced by office uses within Phase 3 of the project if the market demands. This potential change to office uses is consistent with the proposed General Commercial (GC) zoning of the site. The City of Manteca, as the lead agency, has developed primary objectives to satisfy the requirements of the State CEQA Guidelines Section 15124 (b). The projects objectives seek to:

- respond to underserved retail demand in a rapidly developing subregion;
- capitalize on the site's proximity to a major transportation corridor;

- create a wide choice of integrated shopping opportunities;
- provide for the safe and efficient movement of pedestrians and vehicles;
- provide a center with a high-quality design and visual appeal with extensive landscaping and a pedestrian friendly environment;
- expand the economic base of the City with a mix of commercial uses that would be successful into the future;
- develop a subregional retail base within the City of Manteca to prevent loss of this economic opportunity to other surrounding communities; and
- provide high-visibility, high-quality investment within the City that will create jobs and revenue benefiting the city and the local economy.

2.3.3 ELEMENTS OF THE PROJECT

The project site currently consists of agricultural uses including row crops, an orchard, a rural residence in the southeastern portion of the site, and three additional rural residences on the south and southwest portion of the site. The proposed project would result in the construction of an approximately 450,000 square-foot commercial project on 48.5 acres, including retail and restaurant space, and Atherton Road on 3.9 acres. The southern portion of the site consists of three existing residential lots on 10.9 acres and a portion of Woodward Avenue (1.7 acres). No construction would occur on these residential lots. The proposed project includes the prezoning and annexation of the 65-acre site to the City of Manteca. Once annexed, the project site would be subject to the planning jurisdiction of the City of Manteca. The proposed land uses are described in greater detail in Section 4.1, "Land Use," of this DEIR.

Construction of the project would occur in three phases over approximately 44 months. Construction is anticipated to begin in late fall/winter 2009. Depending upon economic conditions completion of all phases is expected by winter 2013. Construction of Phase 1 would include the extension of Atherton Drive within the project area, a detention basin, and the development of approximately 225,800 square feet of retail and restaurant space. Phase 2 construction would include approximately 178,000 square feet of retail and restaurant space and Phase 3 construction would include approximately 46,200 square feet of retail and restaurant space.

2.3.4 SUMMARY OF ALTERNATIVES TO THE PROJECT

This DEIR evaluates the following alternatives to the project:

- No Project Alternative—Continuation of Existing Conditions
- No Project Alternative—Current Entitlement
- Mitigated Design Alternative
- Off-Site Alternative

The No Project Alternatives and the Mitigated Design Alternative are environmentally superior to the project. The Off-Site Alternative is environmentally similar to the project and would result in comparable impacts, but at an off-site location.

The No Project Alternatives would not attain any of the project's objectives. The Mitigated Design Alternative would partially attain some of the project's objectives.

NO PROJECT ALTERNATIVE—CONTINUATION OF EXISTING CONDITIONS

The No-Project Alternative—No Development assumes that existing conditions on the project site would remain. The project site would continue to support the existing agricultural operations and rural residential land uses and no new facilities would be constructed. Although the City General Plan foresees development in this area, this analysis uses existing conditions as the "no-project" scenario consistent with the requirements of the CEQA Guidelines Section 15126.6. Although this alternative is evaluated herein, it is an unlikely long-term alternative for the project area because of the urban land use designations in the City General Plan. Given the City General Plan designations for urban development, future development interest in the site is extremely likely. Further, because the City's adopted land uses for this site are similar to land uses proposed for the project, development that would be expected to occur in absence of the project would likely be substantially similar to development proposed by the project. Therefore, to allow meaningful consideration of a range of alternatives, this No-Project Alternative evaluates the continuation of existing agricultural and rural residential uses at the site in comparison to the project's proposed developed land uses.

Consistent with CEQA requirements, the No-Project Alternative is evaluated in this EIR. The No-Project Alternative would not meet any of the objectives of the project because development of mixed commercial land uses would not occur. In addition, the No-Project Alternative would not be consistent with the intent of the City's General Plan, which calls for development of residential and commercial land uses.

NO PROJECT ALTERNATIVE—CURRENT ENTITLEMENT

The No Project Alternative – Current Entitlement assumes that the project would be developed with land uses that are consistent with the existing land use and zoning designations. As described in Chapter 3, Project Description, the City General Plan designates the portion of the project site north of the southern three parcels and Phase 3 as General Commercial (GC) and the southern three parcels and the Phase 3 area of the project site as Low Density Residential (LDR). The proposed project includes the prezoning and annexation of the entire site to the City of Manteca, including three residential parcels (10.9 acres) in the southwest portion of the site and a portion of Woodward Avenue (1.7 acres) located directly below the site. No development is proposed in the residential parcels and the current LDR designation of the three residential parcels would become Single-Family Residential (R-1). Once annexed, the project site would be subject to the planning jurisdiction of the City of Manteca.

As defined by the City General Plan (2003), the GC designation accommodates wholesale, warehousing, and heavy commercial uses, highway-oriented commercial retail, public and quasi-public uses, and similar and compatible uses. The designation is also intended to accommodate visitor commercial, lodging, commercial recreation, and public gathering facilities, such as amphitheaters, or public gardens. The LDR designation accommodates land use with a mix of dwelling unit types and character determined by the individual site and market conditions. The density range of 2.1 to 8.0 dwelling units per gross acre allows substantial flexibility in selecting dwelling unit types and parcel configurations to suit particular site conditions and housing needs.

Because the project site lies within the unincorporated county, the project site has not received a zoning classification from the City of Manteca. As part of the annexation process the project site would receive a prezoning designation from the City. This classification is required by state law to be consistent with the general plan or a general plan amendment performed simultaneously with the annexation process.

The purpose of this alternative is to provide decision makers with information regarding the development and associated environmental impacts that would occur if the project did not move forward and the site was developed consistent with existing land use and zoning designations. As described above, the project's proposed commercial uses would be consistent with the commercial land uses allowed by the GC designation within Phase 1 and 2 of the site; however, Phase 3 of the proposed commercial site would require a general plan amendment to allow the proposed commercial development. As such, if development that was consistent with the GC and LDR designation on the project were to occur, this development would consist of commercial land uses similar to land

uses proposed by the project within Phase 1 through 3 of the project site. The remaining 3 residential parcels in the southwestern portion of the project site would contain residential land uses between 2.1 and 8 dwellings units per gross acre.

The northern and central portion of the project site would be developed similar to the project; however, the southeast portion of the site (Phase 3) would be developed consistent with LDR designation instead of GC. Because development would still occur within the Phase 3 area, site-specific impacts related to biological resources; cultural resources; visual resources; agricultural resources; land use; hydrology and water quality; geology, soils, seismicity, and paleontological resources; and hazards and hazardous materials could occur similar to the project. The development intensity of the remainder of the southern portion of the site (3 parcels in southeast portion) would be substantially similar to the intensity of development that would occur under the project (i.e., no development would occur). Impacts related to construction- and operational-related air quality, noise, transportation and circulation, public services and utilities, and population, employment, and housing in the southwestern portion of the project site would be less than the project.

The No Project Alternative—Current Entitlement would result in environmental impacts that would not substantially differ from those evaluated throughout this DEIR, and the analysis presented in the DEIR is representative of the impacts that would occur under this alternative. Therefore, no further discussion of the environmental impacts of this alternative is needed. Please refer to Chapter 4 of the DEIR.

MITIGATED DESIGN ALTERNATIVE

The Mitigated Design Alternative is designed to avoid or reduce several of the environmental impacts identified for the project, including minimizing impacts to farmland, noise compatibility, air quality, traffic, sensitive habitats and species, and cultural resources. With this alternative, a reduced density development would be implemented on a smaller portion of the project site.

This alternative would avoid development of 26.2 acres in the central and southeastern portion of the site (Exhibit 7-1). Elimination of this area from the project site would avoid removal of 22.3 acres of Prime Farmland and 3.9 acres of Farmland of Statewide Importance contained within the project site.

In consideration of the project's air quality impacts, it was determined that based on San Joaquin Valley Air Pollution District (SJVAPCD) thresholds, the development footprint and intensity of development on the project site would need to be reduced to approximately 54% of the proposed development to produce emissions that are below significance thresholds. This assumes that the project would comply with emission reduction requirements of SJVAPCD's Rule 9510.

The Mitigated Design Alternative assumes that development on the project site would be reduced to 26.2 acres or approximately 54% (243,000 square feet). Proposed infrastructure and facilities that would serve the development (i.e., roadways, drainage, utilities, parking spaces, etc.) would be similarly reduced. Any existing site structures in the area where construction would occur would be demolished and removed from the site. Site landscaping and setbacks would be in accordance with applicable City guidelines.

The Mitigated Design Alternative would partially meet project objectives by providing a development that is consistent with land use patterns envisioned by the City's General Plan on a portion of the site and at a reduced scale. However, the Mitigated Design Alternative might not be consistent with some project objectives because it may be less economically desirable to develop a project of this size while providing certain amenities essential to this type of project.

OFF-SITE ALTERNATIVE

An off-site alternative would require the location of another potentially feasible site for development of uses consistent with those of the project. As directed in the State CEQA Guidelines Section15126.6(f) (2) (A), "the key

question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location." Because certain significant effects of the project are site-specific (such as the conversion of important farmland and intersection impacts), it would be conceivable that an alternative location could avoid the significant effect. Therefore, it is valid to determine if feasible alternative locations may exist in the area.

The State CEQA Guidelines Section 15126.6(f) (2) (B) indicates that "if the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion." If feasible alternative locations do not exist, the EIR analysis need not continue to consider the issue of an off-site alternative.

The area in which it is reasonable to search for alternative sites would be the jurisdiction of the lead agency, the City of Manteca. A site that could feasibly attain the basic objectives of the project would need to be of comparable size, with adequate access to roadways and utilities to support commercial development, in a location where these uses would be consistent with the General Plan designation and compatible with adjacent uses.

An examination of developable parcels in the City and a review of the City of Manteca General Plan Land Use Element led to the conclusion that one feasible alternative location for the project exists and is approximately 1-mile east of the project site in the City of Manteca. Currently, there is an approximately 93-acre area of undeveloped land east of South Main Street and south of SR 120 that is within the city limits and is of sufficient size to accommodate the 48.5-acre development. This site is designated for Commercial Mixed Use (CMU) by the City of Manteca's General Plan (City General Plan). This land use designation at this site would need to be changed to GC to be compatible with development proposed for the project.

The Off-site Alternative would meet all the project objectives. However, the proposed location for the Off-site Alternative is not owned by the project applicant. Further, it is unknown whether the current land owners would be willing to sell their property. This alternative would require substantial time and investment to research the feasibility of acquiring the site, which makes this alternative potentially infeasible from a development standpoint.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The State CEQA Guidelines require identification of an environmentally superior alternative. If the No Project Alternative is environmentally superior, CEQA requires selection of the "environmentally superior alternative other than the no project alternative" from among the project and the alternatives evaluated.

Table 7-1 identifies whether each of the three alternatives would have "greater," "less," or "similar" impacts as the project for each of the 13 environmental issues evaluated in this DEIR. The No Project Alternative – No Development would have greater impacts than the project in 1 issue area, lesser impacts in 8, and similar impacts in 4 issue areas. The Mitigated Design Alternative would have greater impacts than the project in 1 issue area, lesser impacts in 5, and similar impacts in 7 issue areas. The No Project Alternative – Current Entitlement and Off-site Alternative would have similar impacts to the project in all issue areas.

Based on the listing of lesser and greater impacts as identified in Table 7-1, the No Project Alternative – No Development would appear to be the environmentally superior alternative. The project would result in significant and unavoidable impacts in 5 resource areas: agricultural resources, visual resources, air quality, noise, and transportation. The No Project Alternative – No Development, by comparison would not result in any significant and unavoidable impacts. It would have greater impacts than the project with respect to water quality (associated with stormwater runoff from agricultural activities). Nevertheless, because it would not result in any significant and unavoidable impacts, it is the environmentally superior alternative and it is superior to all other alternatives considered.

By comparison, the Mitigated Design Alternative would reduce, but not to a less-than-significant level, most of the project's significant and unavoidable impacts related to agricultural resources, conflicts between urban and agricultural land uses, air quality, noise, and transportation. While for most resource areas environmental impacts

would be similar, this alternative would achieve the objective of substantially reducing the project's significant and unavoidable impacts. For these reasons, the Mitigated Design Alternative is environmentally superior to the project.

The environmental effects of the Off-Site Alternative would be comparable to the project, because it would result in the same level of development on a substantially similar site and the same levels of construction and operational impacts (i.e., air quality, noise, traffic, biological resources). This alternative would not reduce or eliminate the project's listed significant and unavoidable impacts. Overall, this alternative would be environmentally similar to the project.

Finally, for the reasons described above, the No Project Alternative – Current Entitlement would result in substantially similar environmental impacts as the project. This alternative would not reduce or eliminate the project's listed significant and unavoidable impacts. Overall, this alternative would be environmentally similar to the project.

2.4 SUMMARY OF ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

Table 2-1, presented at the end of this chapter, summarizes the project-specific environmental impacts of the project, the level of significance of the impact before mitigation, recommended mitigation measures, and the level of significance of the impact after implementation of the mitigation measures.

The project would result in project-level significant and unavoidable adverse impacts in five areas: visual resources, air quality, noise, agricultural resources, and transportation and circulation. In addition, the project would contribute to cumulative significant and unavoidable adverse impacts in three areas: visual resources, air quality, global climate change, and noise.

2.5 AREAS OF CONTROVERSY

Section 15123 of the State CEQA Guidelines requires the summary section of an EIR to include "areas of controversy known to the lead agency."

The following issues, in no order of importance, are controversial issues known to the City of Manteca:

- traffic congestion along area roadways;
- conversion of farmland to urban uses;
- visual impacts of the project (i.e., density, lighting, character); and
- alteration of land use and potential conflicts with existing land uses

Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.1 Land Use			
4.1-1: Potential for Division of an Existing Community. The project would not physically divide an established community. Although one of the rural residences would be removed from the site, the existing rural residences and associated outbuildings do not constitute a defined community. For this reason, this impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.2 Visual Resources			
4.2-1: Impacts on a Scenic Vista. No views on or near the project site would be considered a scenic vista. Therefore, development of the project would not alter or obscure views of a scenic vista. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
4.2-2: Damage to Scenic Resources within a State Scenic Highway. No state scenic highways are located within the vicinity of the project site. Therefore, implementation of the project would not result in damage to scenic resources along a state scenic highway. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
4.2-3: Degradation of Visual Character. Implementation of the project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses. This would be considered a significant impact.	S	**Mitigation Measure 4.2-3: Degradation of Visual Character.** Because the project would comply with the City's design and lighting standards, no other feasible mitigation is available to reduce the project's visual impacts to a less-than-significant level. This impact would remain significant and unavoidable.	SU
4.2-4: Impacts from Lighting. The project would require lighting of parking lots, sidewalks, and buildings that could inadvertently cause light and glare for motorists on adjacent roadways and nearby residents. The proposed site lighting plan would create a new source of substantial light and glare that would adversely affect nighttime views in the area. Because calculated site lighting levels would exceed the IESNA lighting recommendations for parking lots for three criteria, and would	S	**Mitigation Measure 4.2-4: Visual Resources—Impacts from Lighting.** The project applicant shall meet or exceed all lighting recommendations (e.g., fixture types, location, and orientation; pole heights; fixture optics; tree removal), as shown in Drawing LSK-1 of the lighting study (Appendix B), into the project design. As a result, impacts associated with site lighting and glare	LTS

LTS = Less Than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
exceed the recommended IDA maximum to average ratios for indirect glare, light and glare levels associated with operation of the proposed project would be a significant impact.		would be reduced to a less-than-significant level.	
4.3 Air Quality			
4.3-1: Air Quality — Generation of Short-Term, Temporary Construction-Related Emissions of ROG, NO_X, and PM_{10}. Construction-related emissions associated with development of the proposed project would not exceed SJVAPCD's mass emission thresholds of significance for ROG, NO_x, or PM_{10} (10 tpy, 10 tpy, and 15 tpy, respectively). However, SJVAPCD-required control measures with respect to PM are not currently part of the project design or description. Thus, project-generated, construction-related emissions, specifically PM_{10}, could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the SJVAB. As a result, this temporary impact would be significant.	S	**Mitigation Measure 4.3-1: Generation of Short-Term, Temporary Construction-Related Emissions of Criteria Air Pollutants and Precursors.** The applicant's contractors shall implement the following standard dust control measures from Table 6-2 of the GAMAQI during construction of the proposed project, as required by SJVAPCD Regulation VIII: ► 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, or vegetative ground cover. ► All onsite unpaved construction roads and offsite unpaved construction 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 and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. ► When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 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 least once every 24 hours when operations are occurring. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to	LTS

LTS = Less Than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		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 surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. ► Any site with 150 or more vehicle trips per day shall prevent carryout and trackout. ► In addition to the measures identified above, the following enhanced and additional control measures from Table 6-3 of the GAMAQI shall be implemented by the applicant's contractors: ► Onsite vehicle speeds on unpaved roads shall be limited to 15 mph. ► Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1 percent. ► Wheel washers shall be installed for all exiting trucks and equipment, or wheels shall be washed to remove accumulated dirt prior to leaving the site. ► The contractor shall install wind breaks at windward side(s) of the construction area. ► Excavation and grading activities shall be suspended when winds exceed 20 mph. ► The overall area subject to excavation and grading at any one time shall be limited to the fullest extent possible. The City, after consultation with the applicant, shall require all feasible additional measures to control construction emissions to be implemented by the applicant's contractors. Such measures may include, but are not limited to the following items from Table 6-4 of the GAMAQI and other sources: ► Onsite equipment shall be maintained and properly tuned in accordance with manufacturers' specifications.	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► When not in use, onsite equipment shall not be left idling. ► Construction scheduling shall limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use at any one time. Construction of the proposed project shall comply with SJVAPCD's ISR (Rule 9510), as required by law. The applicant shall submit and have approved an Air Impact Assessment (AIA) application to SJVAPCD no later than applying for a final discretionary approval with the City of Manteca. The AIA application shall be submitted on a form provided by the SJVAPCD and contain, but not be limited to, the applicant's name and address, detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA shall quantify construction NOX and PM10 emissions associated with the project. This assessment shall include: an estimate of construction emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project, or each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. The general mitigation requirements in the assessment, as contained in the ISR rule, shall include the following: ► Exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project shall be reduced by 20% of the total NOX and by 45% of the total PM10 emissions from the statewide average as estimated by ARB. ► Methods employed by the applicant to reduce construction emissions to the degree noted above include using less polluting construction equipment, including the use of add-on controls, cleaner fuels, or newer lower emitting equipment. The emissions reduction targets listed above shall be met through any combination of on-site emission	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		reduction measures or offset fees, including those required and other mitigation measures listed above. The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and other mitigation measures listed above; however, any on-site emission reductions must be both quantifiable and verifiable to be credited towards the requirements of the ISR Rule.	
4.3-2: Air Quality — Generation of Long-Term Operational Emissions of Criteria Air Pollutants and Precursors. Following full buildout of the proposed project, emissions of criteria air pollutants and precursors associated with the daily operation of the proposed project would exceed SJVAPCD's thresholds of significance for ROG and NOX of 10 tpy. Operational emissions of PM10 would not exceed the SJVPACD's threshold of significance for PM10. Nevertheless, operational emissions could violate or contribute substantially to an existing or projected air quality violation, conflict with the applicable air quality planning efforts, and/or expose sensitive receptors to substantial pollutant concentrations. This long-term impact would be significant.	S	**Mitigation Measure 4.3-2: Generation of Long-Term Operational-Related Emissions of Criteria Air Pollutants and Precursors.** The following mitigation measures would reduce emissions of criteria air pollutants and precursors associated with the day-to-day operational activities of the proposed project. The applicant shall be responsible for the implementation and funding of all of these measures unless otherwise noted. It should be noted that all of the mitigation measures listed below that would reduce criteria air pollutant and precursor emissions would also help reduce GHG emissions. Similarly, the greenhouse gas reduction measures required by Mitigation Measure 5. -1 would also reduce indirect emissions of criteria air pollutants and precursors; however, these reductions may or may not occur in the SJVAB. ► Provide secure, covered bicycle parking for employees consistent with the requirements of the City of Manteca Municipal Code. This may consist of a separate secure, covered bicycle parking area at each employment venue or one or more large shared bicycle parking areas to be used by workers employed at multiple stores. This measure is consistent with CAPCOA's mitigation measure MM T-1 (CAPCOA 2008). ► Maximize bicycle parking for shoppers throughout the site consistent with the requirements of the City of Manteca Municipal Code. Where feasible, at least one bike rack shall be located within 100 feet of each store entrance.	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► Incorporate into the project design preferential parking spaces and charging stations for Neighborhood Electric Vehicles (NEV). The applicant shall also provide preferential parking for Hybrid Electric Vehicles (HEV) and Natural Gas Vehicles (NGV). Preferential parking spaces for NEVs, HEVs, and NGVs shall not affect any handicap parking requirements. After five (5) full years of operation, the Applicant and the City can reconsider these requirements based on both their effectiveness and future unforeseen changes to the fleet of vehicles operated by shoppers in the City of Manteca. ► Transit route maps and schedules, as well as contact information for the San Joaquin County Council of Governments Commute Connection program, shall be posted at each worksite by employers. The Applicant shall include this requirement in the commercial lease agreements for every tenant on the project site. ► Provide a transit stop along Atherton Drive and/or within the project site (i.e., Phase 1) and work with Manteca Transit and the City of Manteca to extend a bus route to one or both of these locations. At the time of writing this EIR Manteca Transit is in the process of extending one of its bus routes to pass by the project along South Union Road (Ferriera, pers. com., 2008). The applicant shall work with Manteca Transit and City of Manteca to add another transit stop along Atherton Road or within the project site (i.e., Phase 1) that would provide a safe, convenient transit stop for project employees and customers. The transit stop shall include a covered waiting area, benches, route information, and lighting. Providing public transit access to the project site is consistent with the City of Manteca's General Plan Policies AQ-P-1 (cooperate with agencies to reduce air pollution), AQ-P-2 (facilitate public transit), AQ-P-4 (efficient traffic flow), and AQ-P-5 (alternative transportation). Providing a	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		sheltered transit stop is also consistent with CAPCOA's mitigation measure MM T-7. Furthermore, this measure is consistent with Measure 25 of SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for alternative transit (SJVAPCD 2007). ► Post signs at all loading docks and truck loading areas which indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by OAL in January 2005. ► All businesses on the project site that receive deliveries by trucks with operating transport refrigeration units (TRUs) shall provide electrification connections for powering those TRUs while during loading and unloading activities. ► To the extent feasible, stores shall schedule delivery trucks during daytime off-peak traffic hours to reduce congestion and vehicle idling on the site. The applicant shall express this preference in writing at the time of establishing commercial lease agreements with project tenants. ► In order to ensure a pedestrian-friendly environment the applicant shall incorporate into the project design a network of clearly marked pedestrian pathways that provide connection among the various on-site retail and from these uses to the transit stop located on or adjacent to the site. Provide shade trees and/or shade structures (e.g., using solar panels) that shade at least 75% of on-site pedestrian pathways. This measure is consistent with Measure 1 of SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for alternative transit (SJVAPCD 2007). ► Incorporate into the project design pedestrian access points on the east, west, and south sides of the site to allow for pedestrian connectivity to the site. No pedestrian access	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		point would be required to the north of Phase 1 Northern Retail Site due to presence of SR 120. This measure is consistent with Measure 8 of SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for alternative transit 8 and CAPCOA's mitigation measure MM T-5 (CAPCOA 2008). ► Plant native, drought resistant, and low maintenance plant species for landscaping pursuant to CAPCOA's mitigation measure MM D-17 (CAPCOA 2008). Operation of the proposed project shall comply with SJVAPCD's ISR (Rule 9510), as required by law. The applicant shall submit an AIA application to the SJVAPCD no later than applying for a final discretionary approval with City of Manteca. The AIA application shall be submitted on a form provided by the SJVAPCD and contain, but not be limited to, the applicant's name address, detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA shall quantify operational NOX and PM10 emissions associated with the project. This shall include the estimated operational baseline emissions (i.e., before mitigation), and the mitigated emissions for each applicable pollutant for the project, or each phase thereof, and shall quantify the off-site fee, if applicable. General mitigation requirements, as contained in the ISR rule, include the following: 1) Applicants shall reduce 33.3% of the project's operational baseline NOX emissions over a period of ten years as quantified in the approved AIA. 2) Applicants shall reduce 50% of the project's operational PM10 emissions over a period of ten years as quantified in the approved AIA. The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and additional measures listed in below for criteria air pollutants and precursors and Mitigation	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		Measure 4.3-7 for GHG emissions. However, any on-site reductions of criteria air pollutants and precursors must be both quantifiable and verifiable to be credited toward the requirements of the ISR Rule.	
4.3-3: Air Quality — Contribution to Local Traffic Congestion and Mobile-Source CO Concentrations. Implementation of the project would result in the generation of CO at nearby intersections from increased vehicular traffic on the local transportation network. However, the project would not contribute to CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. Therefore, the project's contribution to localized mobile- source CO concentrations would be less than significant.	LTS	No mitigation is required.	LTS
4.3-4: Air Quality — Exposure of Sensitive Receptors to Emissions of Toxic Air Contaminants. Construction and operation of the proposed project would result in increased health risk levels associated with short-and long-term emissions of diesel PM and other TACs. However, the incremental increase in health risk levels, including cancer risk and noncancer chronic risk, would not exceed applicable thresholds at nearby sensitive receptors. As a result, this impact would be less than significant.	LTS	No mitigation is required.	LTS
4.3-5: Air Quality — Create objectionable odors affecting a substantial number or people. Implementation of the proposed project would not be expected to expose a substantial number of people to objectionable odors. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
4.4 Noise			
4.4-1: Short-Term Project-Generated Construction-Related Noise Levels. Implementation of the proposed project would result in short-term construction activities associated with grading, construction, demolition of and roadway	PS	**Mitigation Measure 4.4-1: Short-Term Project-Generated Construction-Related Noise Levels.** The applicant shall implement the following measures during construction activities:	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
improvements. These construction activities could potentially expose sensitive receptors to noise levels in excess of the applicable noise standards and/or result in a noticeable increase in ambient noise levels. This impact would be potentially significant.		► Construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools shall be shrouded or shielded, and all intake and exhaust ports on power equipment shall be muffled or shielded. ► Construction operations and related activities associated with the proposed project shall comply with the operational hours outlined in the Manteca Municipal Code noise standards: construction operations shall be limited to between the hours of seven a.m. and seven p.m. ► Construction equipment shall not idle for extended periods of time near noise-sensitive receptors. ► Fixed/stationary equipment (e.g., generators, compressors, rock crushers, cement mixers) shall be located as far as possible from noise-sensitive receptors. Shroud or shield all impact tools, and muffle or shield all in-take and exhaust ports on powered construction equipment. While implementation of this measure would reduce the impact where feasible, there still is the potential that construction noise could exceed applicable noise standards. This would be a significant and unavoidable impact.	
4.4-2: Long-Term Project-Generated Operation-Related Noise Levels from Traffic at Existing Noise-Sensitive Receptors. Implementation of the proposed project could result in an increase of average daily vehicle trips in the proposed project area. The increased traffic volumes would result in a noticeable (3 dB or greater) increase in traffic noise along roadways in and within the vicinity of the proposed project area. This impact would be considered less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.4-3: Long-Term Project-Generated Operation-Related Noise Levels from Stationary Sources at Existing Noise-Sensitive Receptors. Implementation of the proposed project would result in increases in stationary source noise associated with the proposed use. These stationary noise sources could potentially exceed the City's noise standards (hourly and maximum) and result in a noticeable increase in ambient noise levels. Therefore, this impact is considered potentially significant.	PS	**Mitigation Measure 4.4-3: Long-Term Project-Generated Operation-Related Noise Levels from Stationary Sources at Existing Noise-Sensitive Receptors.** The following mitigation measures shall mitigate noise sources associated with the project at the nearest noise-sensitive property line: ► Phase II and Phase III mechanical equipment (e.g., air conditioning and ventilation systems, pump stations, etc.) for large box store uses that are located adjacent to noise-sensitive receptor property lines shall be located in mechanical equipment rooms; or ► The project applicant shall include rooftop parapet noise barriers for each box store of Phase II (S-S1, S-M2, S-A1, SM-3) and Phase III (S-M4, S-S4, S-P4) located adjacent to noise-sensitive land uses. The rooftop parapets shall be four to six feet tall and be required to break line of sight from the source to the residential receptor. Specifically, parapets shall be included at facades adjacent to noise-sensitive uses. Parapets shall be located along the southern and western rooflines of buildings in Phase II and Phase III; and ► Phase II and Phase III loading dock areas shall be shielded by a solid noise barrier. The barrier shall be eight to ten feet tall (as determined based on final grading elevations) and would be required to break line of sight from the source (e.g., heavy truck exhaust stacks and refrigeration units) to the nearest off site noise-sensitive receptor. The solid noise barrier shall be located along the southern and western project boundaries for Phase II loading docks, and along the western boundary for Phase III loading docks. ► The above mitigation measures shall be confirmed by a qualified acoustical consultant once complete detail of HVAC project components are made available.	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		While impacts would be reduced, noise levels at some off-site sensitive land uses could still exceed local noise criteria. This would be a significant and unavoidable impact.	
4.4-4: Groundborne Noise and Vibration Levels Caused by Construction Activities at Sensitive Receptors. Implementation of the proposed project could result in exposing existing sensitive noise-receptors to groundborne noise and vibration levels that exceed the FTA and Caltrans guidelines. These groundborne noise and vibration levels could result in annoyance or architectural/structural damage. This impact would be considered less than significant.	LTS	No mitigation is required.	LTS
4.5 Biological Resources			
4.5-1: Impacts on Special-Status Plants. Implementation of the project would result in the loss and disturbance of freshwater marsh habitat that could support special-status plant species. This impact would be potentially significant.	PS	**Mitigation Measure 4.5-1: Biological Resources—Impacts on Common Plants and Wildlife.** The project applicants shall request coverage under the SJMSCP and fees shall be paid in the amount SJCOG determines during the application and review process for the project. SJCOG may also determine, based on an independent review by a qualified biologist, that the following mitigation shall be implemented to reduce impacts on special-status plants: a. Before project construction, surveys for the special-status plants listed in Table 4.5-1 shall be conducted by a qualified botanist at the appropriate time of year when the target species would be in flower or otherwise clearly identifiable. Surveys shall be conducted in accordance with specific methodologies described in Section 5.2.2.5 of the SJMSCP. If special-status plants are found, the following measures shall be implemented: ► Sanford's arrowhead and slough thistle: The SJMSCP requires complete avoidance of these species; therefore, potential impacts on these species could not be covered through participation in the plan. If these species are present in the project area and cannot be avoided, a mitigation plan	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		shall be developed, with review and input from the regulatory agencies (e.g., DFG). The mitigation plan shall identify mitigation measures for any populations affected by the project, such as creation of off-site populations through seed collection or transplanting, preserving and enhancing existing populations, or restoring or creating suitable habitat in sufficient quantities to compensate for the impact. All mitigation measures that the City determines through this consultation to be necessary shall be implemented by the project proponent. These measures shall be designed to ensure that the project does not result in a net reduction in the population size or range of Sanford's arrowhead and slough thistle. ► Rose mallow and Delta tule pea: These species are considered widely distributed species by the SJMSCP, and dedication of conservation easements is the preferred option for mitigation. If these species are found in the project area, the possibility of establishing a conservation easement shall be evaluated. If dedication of a conservation easement is not a feasible option, payment of SJMSCP development fees may be used to mitigate impacts on these species. Use of conservation easements or development fees for establishment of habitat preserves, or a combination of the two mechanisms, shall be sufficient to avoid an overall net reduction in the population size or range of rose-mallow and Delta tule pea. ► Wright's trichocoronis: This species is considered narrowly distributed by the SJMSCP, and dedication of conservation easements is the preferred option for mitigation. If this species is found in the project area, the possibility of establishing a conservation easement shall be evaluated. If dedication of a conservation easement is not an option, the SJMSCP requires consultation with the permitting agency representatives on the Technical Advisory Committee to	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		determine the appropriate mitigation measures. These may include seed collection or other measures and would be determined on a population basis, taking into account the species type, relative health, and abundance. After the appropriate mitigation has been determined, it shall be implemented by the project applicants.	
4.5-2: Impacts on Special-Status Wildlife. While impacts on giant garter snake would not be expected because low-quality habitat is present on-site and suitable upland habitat is limited, implementation of the project could result in the loss of foraging and nesting habitat for special-status raptors and could also result in the loss of active raptor nests and disturbance of nesting pairs. This impact would be potentially significant.	PS	**Mitigation Measure 4.5-2: Biological Resources—Impacts on Special-Status Wildlife.** The project applicants shall request coverage under the SJMSCP and fees shall be paid in the amount determined by SJCOG during the application and review process for the project. SJCOG may also determine, based on independent review by a qualified biologist, that the following mitigation shall be implemented to reduce impacts on Swainson's hawk, white-tailed kite, and northern harrier: **Swainson's Hawk** a. If the project applicants elect to remove nest trees, then nest trees shall be removed between September 1 and February 15, when the nests are unoccupied. b. If the project applicants elect to retain a tree with an active nest or a nest becomes established in a suitable nest tree during the construction period, a setback shall be established that excludes all construction activities within a distance of two times the dripline diameter of the tree, measured from the nest. This setback shall be maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave the nest. Setbacks shall be marked by brightly colored temporary fencing or other obvious markers. **White-Tailed Kite** Preconstruction surveys shall investigate all potential nesting trees on and adjacent to the project site (e.g., especially tree tops 15–59 feet above the ground in oak, willow, eucalyptus, cottonwood, or other deciduous trees), during the nesting season	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		(February 15 to September 15), whenever white-tailed kite is noted on-site or within the vicinity of the project site during the nesting season. A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. **Northern Harrier** A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback shall apply whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests that are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.	
4.5-3: Impacts on Common Nesting Raptors. Implementation of the project could result in loss of active nests and disturbance of nesting raptors. This impact would be potentially significant.	PS	**Mitigation Measure 4.5-3: Biological Resources—Impacts on Common Nesting Raptors.** Common raptors are not covered by the SJMSCP. Therefore, the following mitigation measures shall be implemented to reduce impacts on these species: a. If project activity would begin during the raptor nesting season (February 15 to September 15), preconstruction surveys shall be conducted in areas of suitable nesting habitat within 500 feet of project activity. Surveys shall be conducted within 14 days before project activity begins. If no active nests are found, no further mitigation shall be required. b. If an active nest is found, an appropriate buffer that minimizes the potential for disturbance of the nest shall be determined by a qualified biologist. No project activities shall begin within the buffer area until the biologist confirms that the nest is no longer active or the birds are not dependent on it. The size of the buffer may vary, depending on the nest location, nest stage, construction activity, and monitoring results.	LTS

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Summary of Environmental Impacts and Mitigation Measures

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4.5-4: Impacts on Protected and Heritage Trees. Implementation of the project is unlikely to result in loss or disturbance of heritage trees or native oaks. It would, however, result in loss or disturbance of existing trees that are protected by local ordinances. This impact would be significant.	S	**Mitigation Measure 4.5-4: Biological Resources—Impacts on Protected and Heritage Trees.** 1. Before project implementation, a tree survey shall be conducted by an arborist certified by the International Society of Arboriculture to enumerate and evaluate all trees on the site that meet the standards in the City Municipal Code. 2. All trees that meet the following criteria shall be avoided and protected during all construction activity: ► native oak trees with a trunk at least 6 inches in diameter at a height of 4.5 feet above the ground and ► heritage trees (all trees with a trunk diameter of 30 inches at a height of 2 feet above the ground). 3. Trees that are subject to protection but must be removed as a result of project implementation shall be replaced with in-kind species in accordance with tree planting specifications established by the City tree ordinance. Native oak trees shall be replaced at a ratio of 3 to 1 and heritage trees shall be replaced at a ratio of 5 to 1. 4. Replacement tree plantings shall be monitored for 3 years in accordance with monitoring protocols set forth in the City tree ordinance. 5. If monitoring indicates that replacement plantings are not meeting performance standards, remedial measures shall be implemented. Appropriate measures shall be determined in coordination with the City.	LTS
4.5-5: Impacts on Sensitive Habitats. Implementation of the project could result in fill or reconfiguration of approximately 0.2 acre of irrigation drainage ditch and associated freshwater marsh habitat. This impact would be significant.	S	**Mitigation Measure 4.5-5: Biological Resources—Impacts on Sensitive Habitats.** 1. Before project implementation, a delineation of waters of the United States, including wetlands that would be affected by the project, shall be made by qualified biologists through the formal Section 404 wetland delineation process. The delineation shall be submitted to and verified by USACE. 2. If, based on the verified delineation, it is determined that fill of waters of the United States would result from project	LTS

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		implementation, authorization for such fill shall be secured from USACE through the Section 404 permitting process. 3. The project applicants shall also consult with DFG to determine whether a Section 1600 Streambed Alteration Agreement may be required for alteration of irrigation drainage ditch and impacts on freshwater marsh habitat. 4. The acreage of waters of the United States and freshwater marsh habitat that would be removed shall be replaced or restored/enhanced on a "no net loss" basis in accordance with USACE and DFG regulations and Development Title 9-1505. A mitigation plan to compensate for unavoidable loss of wetlands shall be developed and implemented. Compensation shall ensure through creation and/or enhancement of appropriate wetland habitats that there is no net loss of overall functions and values of the wetland habitat types adversely affected by the proposed project. The amount of wetland habitat to be included in the mitigation site shall be based on the value of the proposed compensation action and the nature of the effects, but a minimum of a 1:1 ratio of adversely affected habitat to mitigation habitat shall be provided. Compensation may be provided at a ratio of 1:1 of created habitat to filled habitat, while a higher mitigation ratio may be appropriate for mitigation through enhancement and a lower mitigation ratio may be appropriate for indirect effects to habitat preserved on-site. The mitigation plan shall, at a minimum, identify the location of the mitigation site, specify habitat types and associated acreages to be created or enhanced, establish specific success criteria, describe short- and long-term maintenance and management of the mitigation site and wetland habitats preserved on-site, and specify remedial measures to be undertaken if mitigation success criteria are not met. Long-term protection of the mitigation site and on-site preserved wetlands shall be ensured through fee title acquisition, conservation easement, or other suitable mechanisms. Long-term management of mitigation lands shall be ensured by	

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Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		establishing a management endowment or other suitable funding source. The mitigation plan shall be reviewed and approved by the applicable resource agencies and applicable permits, including a Section 404 permit from the USACE and Section 401 Clean Water Certification from the RWQCB shall be obtained before implementation of the project.	
4.5-6: Impacts on Wildlife Movement. Implementation of the project would not substantially impede wildlife movement or the use of important nursery sites as the project site does not link any areas of open space that serve as important wildlife habitat. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.5-7: Consistency with Federal, State, and Local Plans, Policies, and Ordinances. Implementation of the project would not conflict or be inconsistent with adopted federal, state, or local policies that protect sensitive resources. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.5-8: Consistency with Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Conservation Plan. Implementation of the project would not conflict with or be inconsistent with the adopted SJMSCP. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.6 Hazards and Hazardous Materials			
4.6-1: Create a Safety Hazard to Construction Workers. No hazardous environmental conditions have been identified on the northern portion of the subject property (phase 1 and 2). Based on analytical data from collected soil samples from the Phase 1 and 2 portion of the subject property, concentrations of organochlorine pesticides were not detected and detected arsenic concentrations were below the established regulatory screening levels and background levels for California. Based on these findings, the soils in this portion of the site are considered nonhazardous and would not create a significant	PS	**Mitigation Measure 4.6-1: Create a Safety Hazard for Construction Workers.** Prior to construction activities, the project applicant shall prepare a Phase II ESA for the southernmost portion of the subject property (Phase 3 area; refer to Exhibit 3-3 of Chapter 3, "Project Description"). The applicant shall implement all recommended actions identified in the Phase I ESA's and Phase II ESA's. In addition, the project applicant shall prepare a Safety Hazard Plan. This plan will outline measures that will be employed to protect construction workers from exposure to hazardous materials	LTS

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environmental or health hazard if left in place. While a Phase 1 ESA was prepared for the Phase 3 portion of the subject property, soil samples were not collected for this portion of the subject property. This area could have elevated concentrations of pesticides and arsenic and could have localized contamination for discarded oil. Therefore, development and potential safety hazards in Phase 3 of the subject property are unknown. This would be a potentially significant impact.		during remediation, demolition, and construction activities. The project applicant will consult with the contractor to determine the measures to be employed at the site, which could include posting notices, limiting access to the site, monitoring the air quality, watering, and installation of wind fences. Contractors will be required to comply with OSHA and Cal/OSHA health and safety standards. In the event that contaminated soil is encountered in the Phase 3 portion of the subject property, the contractor will prepare a site plan that identifies necessary remediation activities appropriate for proposed land uses, including excavation and removal of on-site contaminated soils, and redistribution of clean fill material within the subject property. The plan will include measures that ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the project site, in coordination with and to the satisfaction of the appropriate regulatory agency (e.g., Regional Water Quality Control Board, California Department of Toxics and Substance Control, etc.), The contractor will be required to comply with the plan and applicable local, state, and federal laws. The plan will outline measures for specific handling and reporting procedures for hazardous materials, and disposal of hazardous materials removed from the site at an appropriate off-site disposal facility.	
4.6-2: Create a Significant Hazard to the Public or the Environment. The project would involve the storage, use, and transport of hazardous materials at the project site during construction activities. In addition, because the project includes commercial uses, it is possible that some facilities could use hazardous materials during operation. However, use of hazardous materials at the site would be in compliance with local, state, and federal regulations. Therefore, impacts related to creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would be less than significant.	LTS	No mitigation is required.	LTS

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4.6-3: Potential Wildfire Hazard. The project site is not located in a designated wildland fire area or a High Fire Hazard Severity Zone. Therefore, the project would not expose people or structures to significant risk of loss or injury involving wildland fires. This would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
4.6-4: Emit or Handle Hazardous Materials or Waste near a School. The project site is located within one-quarter mile of Veritas Elementary School. The project would involve the storage, use, and transport of hazardous materials at the project site during construction activities. In addition, because the project includes commercial uses, it is likely that some facilities could use hazardous materials during operation. However, use of hazardous materials at the site would be in compliance with local, state, and federal regulations. Therefore, impacts related to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school would be a less-than-significant impact.	LTS	No mitigation is required.	LTS
4.7 Geology, Soils, Seismicity, and Paleontological Resources			
4.7-1: Risks to People and Structures Caused by Strong Seismic Ground Shaking. The project site is approximately 23 miles from the nearest potentially active fault. Structural and nonstructural damage and associated hazards resulting from a seismic event would be a potentially significant impact.	PS	**Mitigation Measure 4.7-1: Risks to People and Structures Caused by Strong Seismic Ground Shaking.** a. Before the start of construction activities and before issuance of a grading permit, a final geotechnical subsurface investigation report shall be prepared by the project applicant(s) for the proposed development and shall be submitted to the City Public Works Department. The final geotechnical engineering report shall be prepared according to the standards in the current version of the CBC adopted at the time, and shall address and make recommendations on the following that shall be implemented by the project applicant(s) for all project phases: ► seismic design; ► site preparation;	LTS

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		► appropriate sources and types of fill; ► potential need for soil amendments; ► road, pavement, and parking areas; ► structural foundations, including retaining wall design; ► grading practices; ► erosion/winterization; ► shallow surface water table; ► expansive soils/lateral spreading/subsidence; ► soil corrosivity; ► unstable soils; and ► liquefaction. In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include further subsurface testing of soil and groundwater conditions (as determined necessary by the geotechnical engineer) and shall determine appropriate foundation designs that are consistent with the CBC. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant(s). Special recommendations contained in the geotechnical engineering report shall be noted on the grading plans and implemented as appropriate before construction begins. Design and construction of all new development in all phases of the project shall be in accordance with the CBC. It is the responsibility of the project applicant(s) to provide for engineering inspection and certification that earthwork has been performed in conformity with recommendations contained in the geotechnical report. b. Before issuance of a grading permit, the approved project design plans and specifications, including grading and foundation plans, shall be reviewed by a soils engineer approved by the City. This review shall be completed to assess whether the recommendations in the geotechnical report (Kleinfelder 2007) are sufficient for construction of the buildings described in the final project design plans. If these measures are deemed insufficient, the geotechnical engineer	

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		shall prepare a supplemental site-specific geotechnical report with appropriate recommendations sufficient to ensure the safety of project structures and site occupants. c. The on-site soils will likely be saturated by rainfall in the winter and early spring months. If the construction schedule requires continued work during the wet months, the City shall require the applicant to consult with a qualified civil engineer and implement any additional recommendations provided, as conditions warrant.	
4.7-2: Risks to People and Structures Caused by Seismic-Related Ground Failure. Based on the underlying soil conditions in the project area and the shallowness of the groundwater table, construction of the proposed project has the potential to expose people or structures to seismic-related ground failure, including liquefaction and differential settlement. Therefore, this impact is potentially significant.	PS	**Mitigation Measure 4.7-2: Risks to People and Structures Caused by Seismic-Related Ground Failure.** The applicant shall implement Mitigation Measure 4.7-1, described above, to reduce the risks to people and structures of seismic-related ground failure at the project site.	LTS
4.7-3: Construction-Related Erosion Hazards. Based on soil types and topography, excavation and grading of soil could result in erosion during project construction, particularly during periods of strong winds. This impact is potentially significant.	PS	**Mitigation Measure 4.7-3: Construction-Related Erosion Hazards.** a. A grading and erosion control plan shall be prepared by a California-registered civil engineer and submitted to the Manteca Department of Public Works prior to issuance of any grading permits. The plan shall be consistent with the CBC grading requirements and shall include the site-specific grading proposed for the new development. The project applicant shall ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials. b. BMPs for erosion and siltation prevention, as further described in Chapter 4.9, "Hydrology and Water Quality," of this document, shall be implemented at the project site. The project applicant shall consult with the Central Valley Regional Water Quality Control Board to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, SWRCB	LTS

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		statewide NPDES stormwater permit for general construction activity, and any other necessary site-specific waste discharge requirements or waivers. As required under the NPDES stormwater permit for general construction activity, the project applicant shall prepare and submit the appropriate notice of intent (NOI) and prepare the SWPPP and any other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other appropriate plans shall identify and specify the use of erosion and sediment control BMPs, means of waste disposal, implementation of approved local plans, nonstormwater management controls, permanent postconstruction BMPs, and inspection and maintenance responsibilities. The SWPPP shall also specify the pollutants that are likely to be used during construction that could be present in stormwater drainage and nonstormwater discharges. A sampling and monitoring program shall be included in the SWPPP that meets the requirements of SWRCB Order 99-08-DWQ to ensure that the BMPs are effective. Construction techniques shall be identified that would reduce the potential for runoff, and the plan shall identify the erosion and sedimentation control measures to be implemented. Erosion and sediment control measures could include the use of detention basins, berms, swales, wattles, and silt fencing; and covering or watering of stockpiled soils to reduce wind erosion. Stabilization of construction entrances to minimize trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot. The SWPPP shall also specify spill prevention and contingency measures, identify the types of materials used for equipment operation, and identify measures to prevent or clean up spills of hazardous materials used for equipment operation and hazardous waste. Emergency procedures for responding to spills shall also be identified. BMPs identified in the SWPPP shall be used in all subsequent site development activities. The SWPPP shall identify personnel	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation and performance inspection methods for BMPs specified in the SWPPP. The SWPPP shall also identify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP. All construction contractors shall retain a copy of the approved SWPPP on the construction site.	
4.7-4: Risks to People and Structures Resulting from Unstable Soil Conditions. Soils on the project site have a very low clay content and are rated by the NRCS as either nonplastic (no shrink-swell potential), or of very low plasticity. This impact is less than significant.	LTS	No mitigation is required.	LTS
4.7-5: Risk of Structural Damage Caused by Corrosive Soils. Project site soils are mildly corrosive to buried metal objects (i.e., metal pipes). This impact is considered potentially significant.	PS	**Mitigation Measure 4.7-5: Risk of Structural Damage Caused by Corrosive Soils.** The project applicant shall implement Mitigation Measure 4.7-1, described above, to reduce the risks to people and structures from soil corrosivity at the project site.	LTS
4.8 Agricultural Resources			
4.8-1: Direct Conversion of 48.5 Acres of Important Farmland to Nonagricultural Urban Use. Implementation of the project would result in the direct conversion of approximately 48.5 acres of Prime Farmland and Farmland of Statewide Importance to nonagricultural urban use. This impact would be significant.	S	**Mitigation Measure 4.8-1: Direct Conversion of 48.5 Acres of Important Farmland to Nonagricultural Urban Use.** The project applicant shall pay the required City of Manteca agricultural mitigation fee to help offset the conversion of Important Farmland. Consistent with Chapter 13.42 of the Manteca Municipal Code, an agricultural mitigation fee shall be assessed for every acre of Important Farmland that would be developed as part of the proposed project and shall be provided to the City. Under the City's program, the fees collected would be used to acquire farmland conservation easements and/or farmland deed restrictions. Consistent with goals of the City's Right-to-Farm ordinance, this mitigation measure would help reduce the occurrence of conflicts between nonagricultural and agricultural land uses caused by development pressures, by	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		preserving agricultural lands located within the project vicinity. Implementation of this mitigation measure would substantially lessen significant impacts associated with the conversion of 48.5 acres of Important Farmland on the project site, by funding conservation easements that would provide assistance to the public and private sectors in protecting other farmland from the pressures of development. The agricultural mitigation fee would be used to specifically purchase farmland easements and/or farmland deed restrictions to partially offset project impacts; nonetheless, 65 acres would still be lost. In addition, no net new farmland would be made available nor would productivity of existing farmland be improved as a result of this mitigation measure. Therefore, full compensation for total losses of Important Farmland would not be achieved. No other feasible mitigation is available. Impact 4.8-1 ("Direct Conversion of 48.5 Acres of Important Farmland to Nonagricultural Urban Use") would remain significant and unavoidable after mitigation.	
4.8-2: Conflict with Surrounding Agricultural Operations. The proposed project is adjacent to active agricultural parcels located to the west, south, and east. Agricultural operations adjacent to urban development typically result in potential land use conflicts (e.g., increased dust generation, noise from farming equipment, odors from fertilizer applications) and these potential adverse interfaces would be expected to occur adjacent to the project site because this land is in active agricultural use. Therefore, these conflicting activities and uses would result in a potentially significant impact.	PS	**Mitigation Measure 4.8-2: Conflict with Surrounding Agricultural Operations.** The project applicant shall prepare an agricultural conflict management plan that identifies specific measures that would be implemented to minimize, to the maximum degree possible, potential conflicts with adjacent agricultural operations. At a minimum, the plan shall identify (1) the properties adjacent to the project site that would be in active agricultural production at the time the first occupancy permit is issued, (2) the type of farming operations that would occur at these properties, and (3) the specific measures that would be implemented to minimize potential conflicts. These measures could include, but are not limited to, the posting of signs at regular intervals determined by the City to deter trespassing, posting of "No Parking" signs along the frontage of adjacent agricultural properties, installation of fencing on the project site, and posting of signs warning drivers of the potential for farm vehicle traffic. The project applicant	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		shall coordinate with the City and adjacent landowners regarding the placement of signs. All identified measures shall be in place prior to issuance of the first occupancy permit. While this measure would substantially reduce the potential for conflicts between urban and agricultural land uses, it would not eliminate the impact and some potential conflicts could remain. No other feasible mitigation is available to reduce this impact. Therefore, for purpose of CEQA, this impact would remain significant and unavoidable after mitigation.	
4.9 Hydrology and Water Quality			
4.9-1: Temporary Construction-Related Water Quality Effects. Temporary construction-related ground disturbances on the project site could result in the discharge of stormwater and non-stormwater discharges containing pollutants to nearby drainage systems and ultimately into the San Joaquin River. The discharge of pollutants to local waterways would be a potentially significant construction-related impact on water quality.	PS	**Mitigation Measure 4.9-1: Temporary Construction-Related Water Quality Effects.** The project applicant shall implement Mitigation Measure 4.7-3, "Construction-Related Erosion Hazards."	LTS
4.9-2: Long-Term Water Quality Effects of Urban Runoff. The project would convert agricultural land to commercial uses, and thereby change the amount and timing of potential waste discharges in stormwater runoff. Because specifics related to the stormwater drainage system and water quality treatment features that would be constructed to serve the project site are unknown at this time, the storm drain system would have the potential to discharge urban and construction-related contaminants into SSJID and City of Manteca water drainage facilities. Therefore, this would be a potentially significant impact.	PS	**Mitigation Measure 4.9-2: Long-Term Water Quality Effects of Urban Runoff.** The project applicant shall implement permanent water quality features (BMPs) designed in conformance with standards of the Central Valley RWQCB, the City of Manteca, and SSJID. The applicant shall submit designs for these features to the City prior to issuance of a grading permit. The project applicant shall implement BMPs such as, but not limited to, the following: a. To address peak stormwater discharge rates, the project applicant shall confirm (in coordination with the City, SSJID, and Central Valley RWQCB) that the proposed 20.04 acre-foot on-site stormwater detention basin is properly sized to accommodate the proposed project. b. The project shall be designed to minimize, to the maximum extent practicable, the introduction of pollutants of concern	LTS

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		that may result in significant impacts, generated from site runoff of directly connected impervious areas, to the storm water conveyance system as approved by the City. Pollutants of concern consist of any pollutants that exhibit one or more of the following characteristics: current loadings or historic deposits of the pollutant are adversely affecting the beneficial uses of a receiving water, elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein, or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna. c) Project plans shall include BMPs consistent with local codes, ordinances, or other regulatory mechanism to: ► decrease the potential of slopes and/or channels (e.g., slope of the on-site detention basin and any drainage swales) from eroding and affecting stormwater runoff: ► convey runoff safety from the tops of slopes and stabilize disturbed slopes; ► use natural drainage systems to the maximum extent practicable; ► stabilize permanent channel crossings; ► vegetate slopes with native or drought tolerant vegetation, as appropriate; and ► install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction (e.g., USACE and DFG). d. The project applicant shall provide storm drain system stenciling and signage, where appropriate. Storm drain stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets. The stencil contains a brief statement that prohibits the dumping of improper materials into the stormwater conveyance system.	

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		Graphical icons, either illustrating anti-dumping symbols or images of receiving water fauna (such as fish), are effective supplements to the anti-dumping message. All storm drain inlets and catch basins within the project area shall be stenciled with prohibitive language (e.g., NO DUMPING – DRAINS TO RIVER) and/or graphical icons to discourage illegal dumping. e. Where proposed project plans include outdoor areas for storage of materials that may contribute pollutants to the stormwater conveyance system, the following structural or treatment BMPs shall be implemented: ► materials with the potential to contaminate storm water shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs; ► the storage area shall be paved and sufficiently impervious to contain leaks and spills; and ► the storage area shall have a roof or awning to minimize collection of storm water within the secondary containment area. f. To minimize the off-site transport of pollutants from parking areas, the applicant shall implement stormwater BMPs, such as bioretention areas in landscaping or any swale areas (to the maximum extent feasible), to infiltrate or treat runoff. Implementation of nonstructural BMPs, through various public education and outreach programs maintained by the City under the municipal NPDES stormwater permit, would also serve to limit the types, amounts, and likely discharges of urban runoff into stormwater.	

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.9-3: Potential On-site and Off-site Flooding Risk from Increased Stormwater Runoff. Project implementation would increase the area of impervious surfaces on-site, thereby resulting in increased surface runoff and discharge. The project involves construction of a stormwater runoff collection system, including a 20.04 acre-foot drainage detention facility, to provide on-site stormwater discharge collection capacity sufficient to protect the project site during a 48-hour, 10-year storm event and avoid off-site flooding. Although the project involves construction of adequately sized on-site infrastructure to meet near-term storm drainage demands, the long-term stormwater infrastructure needs of the project would be inadequate without contribution to the City's proposed improvements to the South Drain subshed stormwater drainage system. Therefore, this would be a significant impact.	S	**Mitigation Measure 4.9-3: Potential On-Site and Off-Site Flooding Risk from Increased Stormwater Runoff.** The project site is located in the South Drain subshed, and will discharge stormwater to the FCOC via SSJID Drain 8. Although the project involves construction of adequately sized on-site infrastructure to meet storm drainage demands, the City has identified off-site infrastructure that is needed to accommodate build-out of the area south of SR120, in accordance with the 2006 SDMP. As part of the project, the project applicant shall construct a stilling well at the junction of Drain 8 and Drain 8A, with associated improvements to the City's "Supervisory Control and Data Acquisition" (SCADA) system to allow for enhanced monitoring of Drain 8 water levels as part of the project. This will accommodate near-term discharge of project stormwater. To ensure adequate long-term drainage capacity for the project's stormwater flows certain culvert crossings along the FCOC are required to be improved as identified in the 2006 SDMP. The project applicant shall pay its fair share costs for construction of these necessary South Drain subshed stormwater improvements; FCOC culvert crossings at Louise Avenue, Union Pacific Railroad, Roth Road, and the Drain 8 "Farm Road". The project applicant shall coordinate with the City of Manteca to determine the project's fair share costs of these identified improvements. Impacts associated with construction of these SDMP improvements would generally consist of construction-related air (e.g., respirable particulate matter emissions), noise, biological habitat (e.g., foraging habitat, wetlands), and traffic impacts. In general, proposed improvements would be located within existing right-of-ways (e.g., Woodward Avenue, South Union Road) or in areas that are urbanized or would be urbanized at the time these facilities would be constructed. Based on a reconnaissance-level survey of the project area, including areas along Woodward Avenue and Airport Way, similar habitat conditions are present along these roadways as compared to the	LTS

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		project site. Therefore, construction of the proposed off-site storm drainage improvements would result in similar environmental impacts as the project. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. All of the storm drainage improvements associated with the SDMP have been identified and evaluated in the initial study/mitigated negative declaration (IS/MND) adopted for the Storm Drain Master Plan (City of Manteca 2006c), and the IS/MND prepared for the widening of several culverts in the FCOC (City of Manteca 2008). These IS/MNDs indicated that with mitigation, the proposed South Drain and FCOC improvements would result in less-than-significant environmental impacts (City of Manteca 2006c).	
4.9-4: Impacts on Groundwater. The project would increase demands for domestic water supplies to serve project development. To meet water supply demands, the City of Manteca has a conjunctive use water supply system that draws water from groundwater wells and uses surface water supplied from the SCSWSP. The City's participation in this project eliminated its exclusive reliance on groundwater for water supplies and allows the City to maintain groundwater pumping yields within the sustainable yields of the underlying aquifer. The potential for groundwater overdraft or substantial lowering (i.e., 10 feet or more) of local groundwater levels is not anticipated to occur because these effects are minimized through implementation of the SCSWSP in the City. Therefore, groundwater impacts would be less-than-significant.	LTS	No mitigation is required.	LTS
4.9-5: Reduction in Groundwater Recharge. The project site does not serve as a substantial groundwater recharge area. Therefore, development of the site would result in a less-than-significant groundwater recharge impact.	LTS	No mitigation is required.	LTS

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4.9-6: Potential for Exposure to the 200-Year Flood (Pursuant to SB 5). The project site is located in the 500-year flood zone, but is not located within the 100-year or 200-year flood zone. Therefore, the project site would not be exposed to the 200-year flood, and impacts would be less than significant	LTS	No mitigation is required.	LTS
4.10 Public Services and Utilities			
4.10-1: Increased Demand for Water Supply, Treatment, Storage, and Distribution. Although the project would increase potable and landscape water demands, adequate water supplies (i.e., groundwater and surface water) would be available to serve the proposed project over the long-term. Water would be conveyed to the project site via a water main in Atherton Drive, and distributed throughout the project site via new water distribution lines constructed as part of the project. Because adequate water supply and distribution facilities are available and no new or expanded facilities would be required to serve the project, this impact would be less than significant.	LTS	No mitigation is required.	LTS
4.10-2: Environmental Impacts Associated with the SSJID SCSWSP. The proposed project creates a demand for potable water provided by the SCSWSP. According to the EIR prepared for the SSJID SCSWSP, construction and operation of these facilities could contribute to significant impacts for the following issue areas: hydrology, flooding, and water quality; air quality; geology, soils, and seismicity; biological resources; noise; hazardous materials/public health; visual resources; transportation and traffic circulation; public services and utilities/energy; cultural resources; and recreation. The SCSWSP would provide municipal water to the City, including the proposed project. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in the SCSWSP EIR.	LTS	No mitigation is required.	LTS

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Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.10-3: Increased Demand for Wastewater Treatment and Conveyance Facilities. Although implementation of the proposed project would increase demand for wastewater treatment and conveyance facilities, existing wastewater treatment facilities would be adequate to serve the proposed project, and no expansion of these facilities would be required. This impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.10-4: Increased Generation of Solid Waste. Although the proposed project would increase solid waste generation, Forward Landfill, which would receive solid waste from the project site, has sufficient available capacity to accommodate the project's solid waste demands through 2020. Therefore, this impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.10-5: Increased Demand for Electricity and Natural Gas and Required Extension of Electrical and Natural Gas Infrastructure. Implementation of the project would increase demand for natural gas and electricity in the City. However, the energy demands created by the project are not substantial in relation to the total energy supplied by PG&E in its northern and central California service area (estimated in 2007 to be 86,179 million kilowatt-hours) or energy demands expected in the future. Proposed on-site natural gas and electrical infrastructure improvements would be required to comply with existing City, PG&E, and applicable International Building Code requirements, and would be sufficient to serve the project. Therefore, this impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.10-6: Increased Demand for Fire Protection Facilities and Services. Development of the proposed project would result in increased demand for fire protection services. The proposed project would be required to pay development fees to cover the costs of equipment and services, and would meet the minimum necessary fire protection and safety requirements	LTS	No mitigation is required.	LTS

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identified in applicable codes and regulations. The City fire department currently has adequate staff and facilities to serve proposed project. This impact is considered less than significant.			
4.10-7: Increased Demand for Fire Flow. The proposed project would include fire suppression facilities that would provide adequate fire flow capacity consistent with City standards. Therefore, this impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.10-8: Increased Demand for Police Protection Facilities and Services. Development of the proposed project would increase demand for police protection facilities and services. However, the project would contribute sales tax revenue and the project would pay development fees to provide police protection services which would help ensure funding for any additional necessary officers or equipment. This impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.10-9: Impacts on Existing Utility Corridors. Development of the proposed project could potentially disrupt existing PG&E aboveground and underground utility facilities in the project area, resulting in interruption of service. This would be a potentially significant impact.	PS	**Mitigation Measure 4.10-9: Impacts on Existing Utility Corridors.** PG&E owns and operates natural gas and electric facilities that are located within and adjacent to the proposed project area. To promote the safe and reliable maintenance and operation of utility facilities, the California Public Utilities Commission (CPUC) has mandated specific clearance requirements between utility facilities and surrounding objects or construction activities. To ensure compliance with these standards, the applicant will coordinate with PG&E early in the development of project plans. Any proposed development plans will provide for unrestricted utility access and prevent easement encroachments that might impair the safe and reliable maintenance and operation of PG&E's facilities. The project applicant shall be responsible for the costs associated with any relocation of existing PG&E facilities to accommodate	LTS

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		the development of the proposed project. Because facilities relocations require long lead times and are not always feasible, the applicant is encouraged to consult with PG&E as early in the planning stages as possible. Relocations of PG&E's electric transmission and substation facilities (50,000 volts and above) could also require formal approval from the CPUC. If required, this approval process could take up to 2 years to complete.	
4.11 Transportation and Circulation			
4.11-1: Increases in Project-Related Traffic Volumes on Local Roadway Segments. The traffic analysis concluded that the addition of project-generated traffic to local roadway segments would not degrade currently acceptable LOS conditions to unacceptable conditions based on City of Manteca significance thresholds. This impact would be less than significant.	LTS	No mitigation is required.	LTS
4.11-2: Increases in Peak Hour Traffic Volumes on Regional Roadways Resulting in Unacceptable Levels of Service. The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service at two intersections: Union Road/Daniels Street and Union Road/eastbound SR 120 ramps. Because the project would result in an unacceptable operating condition based on applicable standards, this impact would be significant.	S	**Mitigation Measure 4.11-2a: Union Road/Daniels Street Intersection.** The applicant shall install a traffic signal, a northbound left-turn lane, a northbound through lane, and a southbound through lane. As shown in Table 4.11-22, the installation of a traffic signal, a northbound left-turn lane, a northbound through lane, and a southbound through lane would improve traffic operations to LOS A during both the a.m. and p.m. peak hour. However, due to close spacing with interim signals at the Union Road/eastbound SR 120 ramps, the signalization of this intersection is not feasible unless the interchange is reconstructed. The City and Caltrans are planning for and intend to reconstruct the Union Road/SR 120 interchange including signalizing the Union Road/Daniels Street intersection and reconstructing the interchange to improve the signal spacing between the westbound ramps intersection and Daniels Street. This would reduce the project's impact at this intersection to a less-than-significant level. Therefore, prior to issuance of a building permit, the applicant shall pay their fair	SU

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Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		share towards the reconstruction of the Union Road/SR 120 interchange (which includes intersection widening and signalization of the Union Road/Daniels Street intersection). Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS/ MND) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvement. Because implementation of these improvements prior to project buildout cannot be guaranteed and because the project's fair share contribution would be considerable, the recommended mitigation would be potentially significant and unavoidable.	
		Mitigation Measure 4.11-2b: Union Road/Eastbound SR 120 Ramps Intersection. The applicant shall install a northbound right-turn lane. As shown in Table 4.11-22, the added northbound right-turn lane would improve traffic operations to LOS B and D during the a.m. and p.m. peak hour, respectively. Adequate right-of-way is available within the existing alignment to accommodate this improvement. Implementation of this mitigation would reduce the project's impact on the intersection to a less-than-significant level.	LTS
4.11-3: Project and Cumulative Bicycle Circulation Impacts. While the proposed project would increase demand for bicycle travel; bicycle lanes are proposed along project frontages and would connect to nearby bicycle facilities. Therefore, this impact would be less-than-significant.	LTS	No mitigation is required.	LTS

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4.11-4: Project and Cumulative Pedestrian Circulation Impacts. The new retail land uses associated with the proposed project would increase demand for pedestrian travel. The project would provide a network of internal pedestrian sidewalks and internal circulation and would also construct sidewalks along its frontage on Union Road, Atherton Drive, and Woodward Avenue. Therefore, this impact would be less-than-significant.	LTS	No mitigation is required.	LTS
4.11-5: Project and Cumulative Bus Transit Services. Implementation of the project would generate demand for public bus transportation services. Because limited bus services are currently available to serve the project area and none are proposed as part of the project, this impact would be significant.	S	**Mitigation Measure 4.11-5: Project and Cumulative Transit System Impacts.** Prior to approval of final maps, the project applicant shall coordinate with the City and modify project designs to provide appropriate bus transit facilities at the project site. These facilities shall be designed to meet Americans with Disabilities Act design standards and provide adequate width, vehicle and pedestrian circulation, turning radius of streets, driveways, and parking lots. These facilities could include, but are not limited to, one or more sheltered transit stops along the project frontage on either Atherton Drive or within the project site. While the above measures would ensure that adequate transit facilities at the project site, it cannot be guaranteed that the City would be able to extend bus transit routes to the project site at the time the project begins operation. If bus transit services are provided to the site at the time of issuance of the first building permit, then this impact would be reduced to a less-than-significant level. However, because it cannot be guaranteed that adequate transit services would be in place prior to the opening of the project, for purposes of CEQA this impact would remain significant and unavoidable.	SU
4.11-6: Increases in Peak Hour Traffic Volumes on Local Roadway Segments Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). Operational traffic conditions for cumulative no project conditions on 12 roadway segments in the project study area	S	**Mitigation Measure 4.11-6a: Atherton Drive between Union Road and Main Street.** ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Atherton Drive to four lanes between Union Road and Main Street.	LTS

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would operate at an unacceptable LOS. The project would contribute trips to these intersections and would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. This would be a significant impact.		Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement were fully analyzed in a previous environmental document (Atherton Road Extension and Union Road Widening Project, Initial Study/Proposed Mitigated Negative Declaration; November 27, 2006; SCH No. 2006112136). Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR would not occur. ► By widening this roadway segment to four lanes, roadway operations would improve to LOS C (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, this impact would be reduced to a less-than-significant level.	
		Mitigation Measure 4.11-6b: Airport Way between Yosemite Avenue and Daniels Street. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Yosemite Avenue and Daniels Street. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed	SU

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		alignment for the improvement. ► By widening this roadway segment to six lanes, roadway operations would improve to LOS C (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6c: Airport Way between Daniels Street and SR 120. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Daniels Street and SR 120. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► By widening this roadway segment to six lanes, roadway operations would improve to LOS C (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6d: Airport Way between Atherton Drive and Woodward Avenue. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Atherton Drive and Woodward Avenue. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.	SU

LTS = Less Than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► By widening this roadway segment to six lanes, roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6e: Airport Way between Woodward Avenue and McKinley Avenue. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Woodward Avenue and McKinley Avenue. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► By widening this roadway segment to six lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6f: Union Road between Daniels Street and SR 120. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Union Road to four lanes between Daniels Street and SR 120. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. ► By widening this roadway segment to four lanes roadway	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		operations would improve to LOS D conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6g: Union Road between SR 120 and Atherton Drive. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Union Road to six lanes between SR 120 and Atherton Drive. Construction of this improvement would primarily occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement were fully analyzed in a previous environmental document (Atherton Road Extension and Union Road Widening Project, Initial Study/Proposed Mitigated Negative Declaration; November 27, 2006; SCH No. 2006112136). Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR would not occur. ► By widening this roadway segment to six lanes roadway operations would improve to LOS D conditions (see Table	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, this impact would be reduced to a less-than-significant level.	
		Mitigation Measure 4.11-6h: Union Road between Woodward Avenue and Peach Avenue. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Union Road to four lanes between Woodward Avenue and Peach Avenue. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. ► By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6i: Woodward Avenue between McKinley Avenue and Airport Way. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between McKinley Avenue and Airport Way. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. ► By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6j: Woodward Avenue between Airport Way and Oleander Road. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between Airport Way and Oleander Road. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. ► By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6k: Woodward Avenue between Oleander Road and Union Road. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between Oleander Road and Union Road. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. ► By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-6l: Woodward Avenue between Tinnin Road and Main Street. ► Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between Tinnin Road and Main Street. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. ► By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
4.11-7: Increases in Peak Hour Traffic Volumes on Regional Roadways Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service and warrant the need for improvements at 16 intersections under cumulative plus project conditions. Because the project would result in an unacceptable operating conditions based on applicable standards, this impact would be significant.	S	**Mitigation Measure 4.11-7a: Airport Way/Yosemite Avenue.** Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which have been identified in the PFIP projects list: ► Construct three northbound and southbound through lanes ► Construct three eastbound and westbound through lanes ► Construct dual left-turn lanes on all approaches ► Construct right-turn lanes on all approaches Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design for the improvement. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7b: Airport Way/Wawona Street. Prior to issuance of any building permits, the applicant shall pay their fair-share of intersection improvements. The impact at this location could be reduced to a less than significant level by constructing the following intersection improvements identified in the PFIP projects list: ► Signalize the intersection ► Construct three northbound and southbound through lanes ► Construct a southbound left-turn lane, a northbound right-turn lane, and a westbound right-turn lane Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvement. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7c: Airport Way/SR 120 Westbound. Prior to issuance of any building permits, the applicant shall pay their fair-share to reconstruct the SR 120/Airport Way interchange. The City of Manteca and Caltrans are currently preparing a Project Study Report (PSR) for future interchange improvements at Airport Way/SR 120. As part of the improvements, the Airport Way overpass and ramp terminal intersections would be designed to provide acceptable LOS D or better operations under cumulative conditions. The future design of the interchange is not yet finalized, but based on the PSR for the Union Road/SR 120 interchange (which is substantially similar to what is proposed for this interchange), and the PFIP project list, the Airport Way/SR 120 interchange would likely have a partial cloverleaf design. The overpass would include three through lanes in each direction. The design for the ramp terminal intersections would include dual left-turn lanes and dedicated right-turn lanes. Reconstruction of the interchange would occur off the project site. Impacts associated with reconstruction of the interchange would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to reconstruction of the interchange would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is	SU

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Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		too speculative to determine these impacts without a proposed design alignment for the improvement. Further, the City and Caltrans are working together to prepare the necessary environmental documents for this improvement. With reconstruction of the interchange, the Airport Way / SR 120 westbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7d: Airport Way/SR 120 eastbound. The applicant shall implement Mitigation Measure 4.11-7c. With reconstruction of the interchange, the Airport Way / /SR 120 eastbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and	SU

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Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7e: Airport Way/Atherton Drive. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list: ► Signalize the intersection ► Construct three northbound and southbound through lanes ► Construct two eastbound and westbound through lanes ► Construct dual left-turn lanes on the eastbound and westbound approaches Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts	SU

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		associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7f: Airport Way/Woodward Avenue. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list: ► Signalize the intersection ► Construct two left-turn lanes, three through lanes, and one right-turn lane on the northbound and southbound approaches ► Construct two left-turn lanes, two through lanes, and one right-turn lane on the eastbound and westbound approaches. Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would	SU

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		be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7g: Union Road/Yosemite Avenue. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list: ► Construct dual left-turn lanes at the northbound approach ► Construct two eastbound through lanes ► Construct right-turn lanes on the westbound, southbound, and northbound approaches. Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would	SU

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		be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7h: Union Road/Wawona Street. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list: ► Construct two southbound through lanes ► Construct a right-turn lane on the northbound approach. Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a	SU

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		less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7i: Union Road/Daniels Street. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list: ► Signalize the intersection ► Construct two southbound through lanes ► Construct two northbound through lanes ► Construct a left-turn lane on the northbound approach. Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a	SU

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		less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7j: Union Road/SR 120 westbound. The applicant shall pay their fair-share to reconstruct the SR 120/Union Road interchange. The City of Manteca and Caltrans are currently preparing a Project Report/Environmental Document for future interchange improvements at Union Road/SR 120. As part of the improvements, the Union Road overpass and ramp terminal intersections would be designed to provide acceptable LOS D or better operations under cumulative conditions. The future design of the interchange is not yet finalized; but based on the PSR for the interchange and the PFIP project list it would likely have a partial cloverleaf design. The overpass would include two through lanes in each direction. The design for the ramp terminal intersections would include dual left-turn lanes and dedicated right-turn lanes. Reconstruction of this interchange would occur off the project site. Impacts associated with reconstruction of this interchange would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to reconstruction of this interchange would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement. With reconstruction of this interchange, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-	SU

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Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7k: Union Road/SR 120 eastbound. The applicant shall implement Mitigation Measure 4.11-7j. With reconstruction of the Union Road / SR 120 interchange, the Union Road / SR 120 eastbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	SU
		Mitigation Measure 4.11-7l: Union Road/Woodward Avenue. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:	SU

LTS = Less Than Significant PS = Potentially Significant S = Significant SU = Significant and Unavoidable

Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► Signalize the intersection ► Construct two left-turn lanes, two through lanes, and one right-turn lane on each approach. Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7m: Main Street/SR 120 westbound. The applicant shall implement Mitigation Measure 4.11-7j. With reconstruction of the Union Road / SR 120 interchange, the Union Road / SR 120 westbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7n: Main Street/SR 120 eastbound. The applicant shall implement Mitigation Measure 4.11-7j. With reconstruction of the Union Road / SR 120 interchange, the Main Street / SR 120 eastbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	SU
		Mitigation Measure 4.11-7o: Main Street/Woodward Avenue. Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		► Signalize the intersection ► Construct two through lanes at each approach ► Construct dual lefts on the northbound, southbound, and westbound approaches Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements. With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	
		Mitigation Measure 4.11-7p: Union Road/Project Access Driveway (Study intersection #21). The applicant shall prohibit left turn outs at the Union Road/Project Access Driveway (Study Intersection #21).	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		This intersection operates acceptably with left turns out in the existing plus project scenario; however, at a time between the existing plus project scenario and the cumulative plus project scenario intersection operations become unacceptable. Therefore, the applicant shall either 1) alter the site plan to show no left turns out or 2) construct the intersection to allow left turns out and pay the City of Manteca to monitor the intersection annually to determine when operations fall below acceptable levels and the turning movement shall be prohibited. The effects of prohibiting left turns out at this intersection were examined on the Union Road/Atherton Drive and Atherton Drive/Project Access 26 intersections to ensure that operations remained acceptable. When left turns are prohibited, the applicant shall construct a pork-chop island or a raised center median to ensure that vehicles are physically prohibited from making this movement. With implementation of this mitigation, this impact would be reduced to a less-than-significant level.	
4.11-8: Increases in Traffic Volumes on Freeway Mainlines Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). Under cumulative no project conditions, 8 freeway mainline segments would operate at an unacceptable LOS during peak hours. With implementation of the project, the project would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. This would be a significant impact.	S	**Mitigation Measure 4.11-8: Fair-Share of Atherton Drive Extension and Pay Regional Transportation Impact Fee.** Prior to issuance of any building permits, the applicant shall pay their fair-share to extend Atherton Drive westerly from the project site to connect to the existing terminus of Atherton Drive near Sparrowhawk Street. This alignment extension has been evaluated as part of the City's General Plan and EIR. No additional significant impacts not previously identified in this EIR would occur with this improvement. This connection would offer another route for project trips to Airport Way without using the state highway system. Although this improvement would reduce congestion on SR 120, it is unlikely that the densities on SR 120 would be reduced to acceptable levels. In addition, prior to issuance of any building permits, the project applicant shall pay their fair-share of the SJCOG regional transportation impact fee to support current and future freeway	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		widening projects in the area. With payment of this fee, the project's cumulative impacts would be reduced to a less-than-significant level. Caltrans currently does not have any plans for further widening of SR 99 or SR 120 and a funding mechanism for improvements at the identified segments has not been established by Caltrans. The City of Manteca acknowledges its lead agency responsibilities to address potential significant impacts to traffic including on the state highway system that may result from City approved projects. The City is committed to work in good faith with Caltrans and our other regional partners to provide feasible mitigation measures to address these impacts. While a funding mechanism has not been established and improvements have not been identified, the project applicant and the City shall coordinate with Caltrans to identify the specific fair share costs and the funding mechanism that would be used to construct these improvements along the State highway system. The cumulative conditions analysis assumed that the SR 120 (between I-5 and SR 99) and SR 99 (between SR 4 and SR 120) widening projects were completed. If each of the freeway segments were widened an additional lane, the operation of these freeway segments would improve to an acceptable LOS under Cumulative Plus Project conditions, which is acceptable based on Caltrans standards. Therefore, the cumulative operational impact to these freeway segments would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because it is unknown whether this mitigation would be implemented prior to project buildout and whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.11-9: Increases in Traffic Volumes on Freeway Ramps Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). Traffic generated by the proposed project would exacerbate already unacceptable freeway ramp operations at the Airport Way and Union Road interchanges under cumulative plus project conditions. This would be a significant impact.	S	**Mitigation Measure 4.11-9: Airport Way/SR 120 Ramp Junctions and Union Road/SR 120 Ramp Junctions.** The applicant shall implement Mitigation Measures 4.11-7c, 4.11-7d, 4.11-7j, and 4.11-7k. Implementation of improvements at the Airport Way/SR 120 and Union Road/SR 120 interchanges would improve ramp terminal intersection operations by adding additional turn lanes. In addition, auxiliary lanes would be constructed on SR 120 when the Airport Way and Union Road interchanges are reconstructed. With the addition of auxiliary lanes at these interchanges, the project's impacts would be reduced to as less-than-significant level because the additional capacity created by the auxiliary lanes would be greater than the additional traffic generated by the projects. With implementation of this mitigation, this impact would be reduced to a less-than-significant level.	SU
4.11-10: Impacts on Emergency Vehicle Access. The project would provide adequate emergency access to the project site. However, construction vehicles could temporarily obstruct local roadways, which could impair the ability of local emergency response agencies to respond to an emergency in the project area. This would be a less than significant impact.	LTS	No mitigation is required.	LTS
4.11-11: Increased Roadway Congestion from Construction Traffic. It is estimated that 120 one-way daily trips to the project site would be generated during peak construction periods. This could result in adverse effects on the operation of project area roadways during the peak commute periods. In addition, construction traffic, particularly truck traffic, could degrade pavement conditions along access roadways. This impact would be potentially significant.	PS	**Mitigation Measure 4.11-11: Prepare and Implement a Construction Traffic Management Plan.** Prior to the issuance of building permits, the project applicant shall prepare a Construction Management Plan and submit the plan to the City of Manteca Public Works Department for review and approval. The Construction Management Plan shall identify the timing of construction and the timing of elements that would result in the full or partial blockage of local roadways. The plan shall specify the measures that would be implemented to minimize traffic-related impacts, including construction parking during construction, which shall be limited to on-site areas or facilities designated for parking uses (e.g., parking lots). These measures could include, but are not limited to the following: use	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		of signage notifying travelers that they are entering a construction zone; and use of cones, flaggers, and guide-vehicles to direct traffic through the construction zone. In addition, the plan shall include, at a minimum, the following conditions: ► Local roadways shall be jointly monitored by the City and project applicant every six months to determine whether project-related construction traffic is degrading roadway conditions. Roadways with potential to be damaged by construction traffic and included in the monitoring effort shall be agreed to by the City and the project applicant. ► All degradation of pavement conditions because of project-related construction traffic shall be fully repaired by the project applicant to the satisfaction of the City of Manteca, based on maintaining at least preconstruction conditions. ► Procedures shall be provided for any road closures and movement of large construction vehicles such as cranes and dump trucks. ► Plans shall be provided for lane closures, including times (e.g., limit closures to between 9:00 a.m. and 4:00 p.m.). ► A copy of the plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct local roadways. With implementation of this mitigation, this impact would be reduced to a less-than-significant level	
4.11-12: Conformity with City Parking Requirements. The project would provide off-street parking consistent with the City's parking ordinance. Therefore, this impact would be less than significant.	LTS	No mitigation is required.	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.12 Cultural Resources			
4.12-1: Known Archaeological Resources. Archival and field research has demonstrated that there are no known archaeological resources within the proposed project area. Because there are no known recorded archeological sites, features, or artifacts within the project area, the project's impact on known archeological resources would be less than significant.	LTS	No mitigation is required.	LTS
4.12-2: Known Historic Resources. Project construction would result in the removal of one residence in the southwest corner of the project area. This building does not appear to be eligible for listing on the CRHR. Because none of the buildings on the project site would be eligible for listing on the CRHR, the project's impact on these properties would be less than significant.	LTS	No mitigation is required.	LTS
4.12-3: Undiscovered/Unrecorded Archaeological Sites. Project-related construction activities may uncover or otherwise disturb previously undiscovered or unrecorded archaeological resources. If such resources were to represent "historical resources" or "unique archaeological resources" as defined by CEQA, any substantial change to or destruction of these resources would be a potentially significant impact.	PS	**Mitigation Measure 4.12-3: Undiscovered/Unrecorded Archaeological Sites.** At the onset of construction, all construction personnel shall be alerted to the possibility of buried cultural resources and shall be educated as to identification of archaeological artifacts. If artifacts or unusual amounts of stone, bone, or shell or significant quantities of historic-era artifacts are uncovered during construction activities, work within 50 feet of the specific construction site at which the suspected resources have been uncovered shall be suspended, and the project applicant shall be immediately contacted. At that time, the project applicant shall retain a professional archaeologist, who shall conduct a field investigation of the specific site and recommend measures deemed necessary for the protection or recovery of any cultural resources concluded by the archaeologist to represent significant or potentially significant resources as defined by CEQA. These measures could include, but are not limited to, capping, data recovery, or excavation. The project applicant shall implement	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		the measures deemed necessary by the archaeologist before the resumption of construction activities within the area of the find.	
4.12-4: Undiscovered/Unrecorded Human Remains. Project-related construction activities could uncover or otherwise disturb previously undiscovered or unrecorded human remains. Any disturbance of human remains would be a potentially significant impact.	PS	**Mitigation Measure 4.12-4: Undiscovered/Unrecorded Human Remains.** If human remains are found on the project site, the California Health and Safety Code (HSC) requires that excavation be halted in the immediate area and the county coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (HSC. 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (HSC 7050.5[c]). The responsibilities of the NAHC for acting on notification of a discovery of Native American human remains are identified in the California PRC, Section 5097.9. The NAHC is responsible for immediately notifying the person it believes is the most likely descendant (MLD) of the Native American whose remains were found. With permission of the legal landowner(s), the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. The MLD should do this within 24 hours of NAHC notification (PRC 5097.98[a]). If an agreement for treatment of the remains cannot be resolved satisfactorily, any of the parties may request mediation by the NAHC (PRC 5097.94[k]). Should mediation fail, the landowner or the landowner's representative must re-inter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (PRC 5097.98[b]).	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
4.13 Population and Housing			
4.13-1: Population Growth and Housing Demand During Construction. The proposed project would generate a temporary increase in employment in the City of construction jobs during the peak construction period. The number of existing construction personnel in the region is considered sufficient to meet demand associated with the proposed project; therefore, this temporary increase in employment is not expected to generate any substantial new population growth in the area or generate the need for substantial additional housing for construction workers. This impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.13-2: Increased Employment Opportunities and Housing Demand. Development of the proposed project would increase the number of jobs in the City. The jobs-housing indices for the County and City indicate that the number of employed residents living in the County and City exceed the number of jobs, and that there is a net out-commuting population. Given these conditions, jobs generated by the proposed project are expected to be filled in large part by the existing resident labor pool. Because the project is anticipated to generate little or no demand for new housing and would likely bring the regional jobs-housing index closer to a balanced condition, this impact is considered less than significant.	LTS	No mitigation is required.	LTS
4.13-3: Housing Displacement. Dwelling units in the proposed project area consists mainly of rural residences and associated outbuildings interspersed with agricultural operations. One residence on-site would be removed, and the site would be developed with commercial retail development. In the vicinity of the proposed project, several new residential subdivisions are currently under development or are proceeding through the development entitlement process to the southwest and south of the project site, which would provide sufficient	LTS	No mitigation is required.	LTS

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
housing opportunities for any residents displaced by the proposed project. This impact is considered less than significant.			
5.0 CUMULATIVE IMPACTS			
5-1: Substantial Contribution of Greenhouse Gas Emissions. Construction- and operation-related activities of the proposed project would result in a net increase in GHG emissions. The construction GHG emissions would be less than a level generally viewed as considerable and therefore they would not be significant. The increase from operations would be above levels generally determined to be considerable and would conflict with the state's AB 32 goals, which require reductions in statewide emissions levels of GHGs. The project's GHG emissions would contribute to the cumulative impact that is global climate change. As a result, this impact would be considered significant.	S	**Mitigation Measure 5-1: Substantial Contribution of Greenhouse Gas Emissions.** The following mitigation measures would help reduce the GHG emissions associated with the day-to-day activities of the proposed project. It should be noted that some of the mitigation measures to reduce GHG emissions would also help reduce CAP emissions. Conversely, the mitigation measures listed under Mitigation Measure 4.3-2 for criteria air pollutants and ozone precursors will also reduce GHG emissions from mobile and area sources. Implementation of Mitigation Measure 5-1 would result in reductions of GHG emissions; however, at the time of writing this EIR these reductions cannot be fully quantified. While implementation of these mitigations may not reduce Impact 5-1 to a less-than-significant level, implementation of the following mitigations are still required as a condition of project approval: ► Implement all mitigation measures listed above in Mitigation Measure 4.3-2, which will have the added benefit of reducing project-generated, operation-related GHG emissions. ► Design buildings to exceed 2008 Title 24 energy efficiency standards by a minimum of 20%. This mitigation measure is consistent with the City of Manteca's General Plan Policy AQ-P-10, which encourages energy efficient building designs. In addition, this measure is consistent with the Measures 14 and 15 from SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for commercial uses (SJVAPCD 2007). ► Ensure that all appliances installed in all retail and commercial buildings on the project site are ENERGY	SU

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		STAR qualified. This mitigation measure is consistent with the City of Manteca's General Plan Policy AQ-P-10, which encourages energy efficient building designs. ► Install energy efficient lighting (e.g., "Smart Lighting" [bi-level sensor LED]) in the parking lot and along on-site pedestrian walkways. ► All hot water for proposed businesses should be supplied from solar water heaters and/or tankless water heaters. This mitigation measure is consistent with the City of Manteca's General Plan Policy AQ-P-10 to encourage energy efficient building designs. ► Provide water efficient landscape irrigation design to reduce the outdoor use of potable water by a minimum of 50% beyond that of the established water budget, where the established water budget for landscape irrigation is consistent with the Department of Water Resources' Model Water Efficient Landscape Ordinance. If desired, measures to achieve a 50% reduction may include, but are not limited to the installation and use of rooftop rain collection cisterns or other water collection devices that store rainwater or storm water for landscape irrigation, or the use of gray water produced on site. This mitigation measure is consistent with City of Manteca's General Plan Water Conservation Goal RC-2 to recycle water for irrigation and non-potable uses. The Applicant shall provide a plan for achieving this performance standard when submitting its building plans to the City. The City shall review whether the plan to meet this water conservation performance standard is consistent with the methods outlined in the Department of Water Resources' Model Water Efficient Landscape Ordinance. ► Minimize the use of water, including the use of pressure washers, for regular maintenance of parking lot, walkway, and store front areas. Pressure washing of buildings and surfaces shall not be performed more than once each year.	

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Table 2-1
Summary of Environmental Impacts and Mitigation Measures

Impacts	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
		The Applicant shall include this requirement in the commercial lease agreements for every tenant on the project site. Implementation of Mitigation Measure 5-1 would result in reductions of GHG emissions; however, as stated above, at the time of writing this EIR these reductions cannot be fully quantified. Thus, the net increase in GHG emissions resulting from the project may still be considered substantial. Because the project would potentially still result in a net increase in CO_2 emission levels and conflict with the state's AB 32 goals, this impact would be remain significant and unavoidable.	

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3 PROJECT DESCRIPTION

The project applicant (William Filios) submitted an application to the City of Manteca (City) for the development of a commercial development on the project site. The project, entitled the Union Crossing project, would include commercial uses including retail and restaurant. Although not currently proposed, some retail uses may be replaced by office uses based on market demands.

3.1 PROJECT LOCATION AND SETTING

The project site is approximately 65 acres (including three residential parcels along Woodward Avenue and a portion of Woodward Avenue that would be annexed) and is located just outside the southern boundary of the City of Manteca (Exhibit 3-1) within San Joaquin County. The project site is located immediately south of State Route (SR) 120, approximately 2 miles west of SR 99, and 4 miles east of Interstate 5. The site is generally bounded by an SR 120 eastbound exit ramp to the north; Woodward Avenue, agricultural land, and rural residential homesites to the south; South Union Road and residential and commercial land uses (currently under construction) to the east; and agricultural land and a residential homesite to the west (Exhibit 3-2).

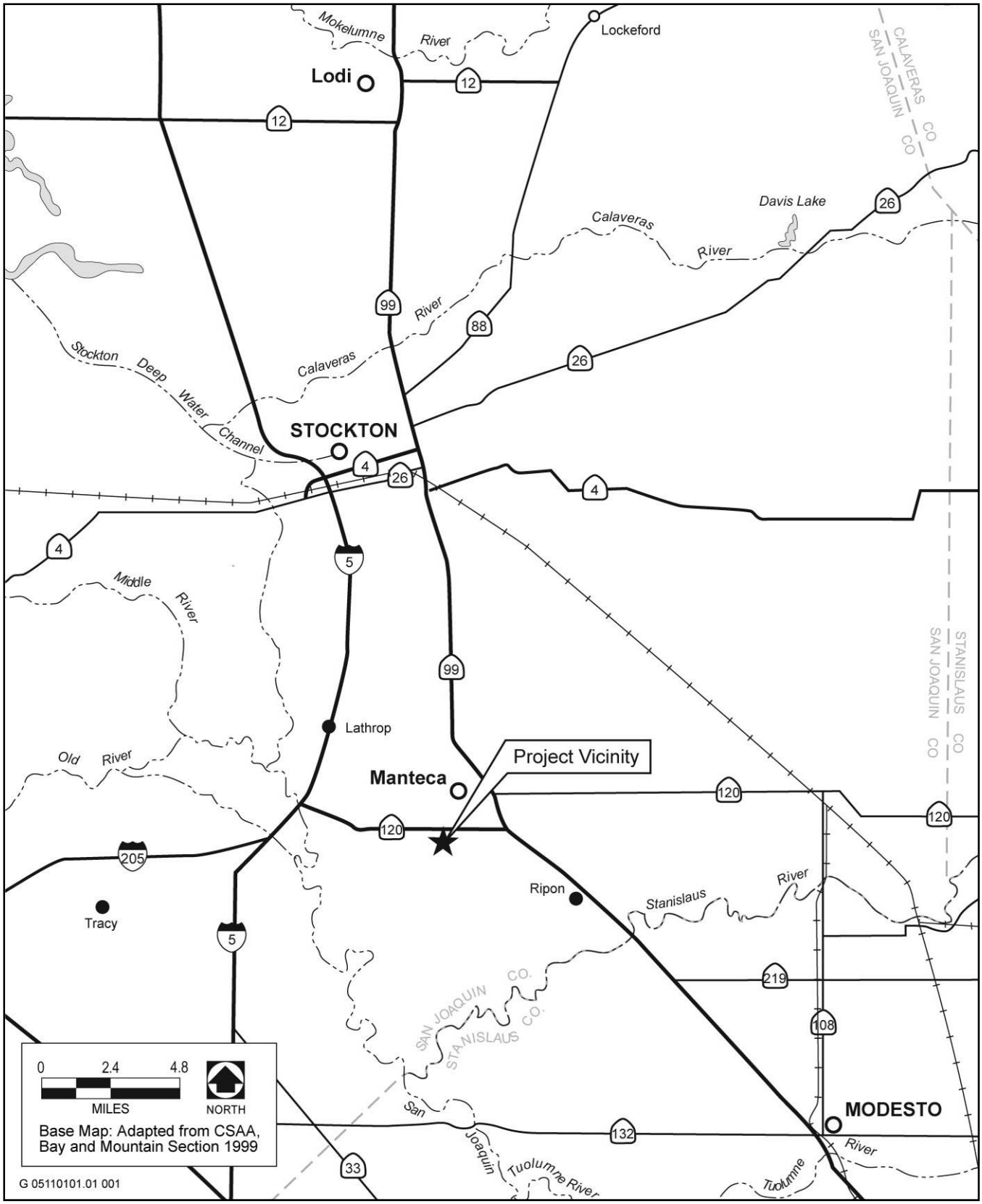
Existing uses on the project site include row crops, an orchard, a rural residence in the southeastern portion of the site, and three additional rural residences on the south and southwest portion of the site. In general, agriculture is the predominant land use in the project vicinity. However, with adoption of the *City of Manteca General Plan 2030* (City General Plan) in 2003 and designation of the area for urban land uses, the area is experiencing an increasing number of development applications to convert agricultural lands to urban development. Low-density single-family residential subdivisions are developed to the north, directly across SR 120. In addition, several new residential subdivisions and a commercial center are under development or are proceeding through the development entitlement process to the west, south, and east of the project site.

In recent years, the City of Manteca has emerged as a regional metropolitan area, caused in part by its proximity to the Bay Area. The City of Manteca has historically been a prime agricultural center because of its fertile soil, mild climate, and access to clean water. However, the area has been experiencing new trends in development and the area's new and proposed subdivisions are indicative of the area's rapid economic and housing growth.

The City General Plan designates the site for General Commercial (GC) and Low Density Residential (LDR) land uses. The proposed project includes the prezoning and annexation of the entire site to the City of Manteca, including three residential parcels (10.9 acres) in the southwest portion of the site and a portion of Woodward Avenue (1.7 acres) located directly below the site. No development is proposed in the residential parcels and the current LDR designation of the three residential parcels would become Single-Family Residential (R-1). As part of the annexation process the project site would receive a prezoning designation from the City. This classification is required by state law to be consistent with the general plan or a general plan amendment performed simultaneously with the annexation process. Once annexed, the project site would be subject to the planning jurisdiction of the City of Manteca.

The northern and central portions of the site are already designated as GC. However, the southeastern parcel proposed for commercial development is currently designated as LDR. This would require a general plan amendment to redesignate the southeastern parcel to GC.

The GC land use designation provides for wholesale, warehousing, and heavy commercial uses; highway-oriented commercial retail; public and quasi-public uses; and similar and compatible uses. As set forth in the City General Plan, this designation is intended to accommodate visitor commercial, lodging, commercial recreation and public gathering facilities, such as amphitheatres, or public gardens.



Source: Adapted by EDAW in 2008

Regional Map **Exhibit 3-1**



Source: San Joaquin County 1999, NAIP 2005

Project Location Map with Preliminary Site Plan **Exhibit 3-2**

3.2 PROJECT PURPOSE AND OBJECTIVES

In general, the purpose of the proposed project is to develop a shopping center that would include restaurant and retail uses, all of which would contribute to the economic base of the City of Manteca and respond to underserved demand for such uses within a rapidly growing area. Although not currently proposed, some retail uses may be replaced by office uses within Phase 3 of the project if the market demands. This potential change is consistent with the current and proposed General Commercial (GC) zoning of the site. The projects objectives seek to:

- respond to underserved retail demand in a rapidly developing subregion;
- capitalize on the site's proximity to a major transportation corridor;
- create a wide choice of integrated shopping opportunities;
- provide for the safe and efficient movement of pedestrians and vehicles;
- provide a center with a high-quality design and visual appeal with extensive landscaping and a pedestrian friendly environment;
- expand the economic base of the City with a mix of commercial uses that would be successful into the future;
- develop a subregional retail base within the city of Manteca to prevent loss of this economic opportunity to other surrounding communities; and
- provide high-visibility, high-quality investment within the City that will create jobs and revenue benefiting the city and the local economy.

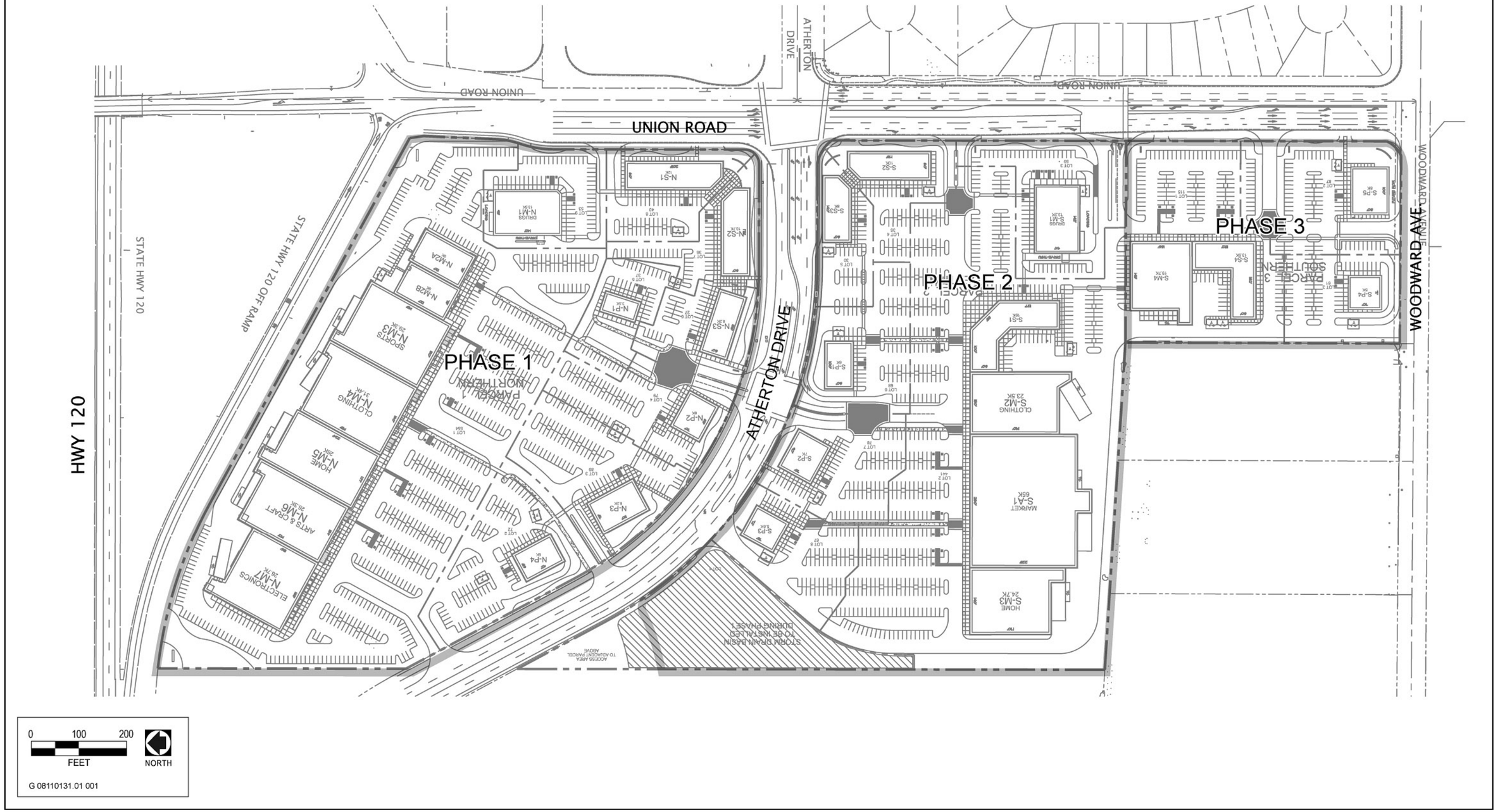
3.3 PROJECT CHARACTERISTICS

As part of the project, the City of Manteca proposes to annex the 65-acre site. The proposed project would include three parcels on Woodward Avenue that would be zoned as Single-Family Residential (R-1). These parcels are developed with existing homes and no development would occur on these three parcels. The remaining 48.5 acres of the project site (excluding the three residential parcels [10.9 acres] and the portions of Woodward Avenue [1.7] and Atherton Drive [3.9 acres]) would include an approximately 450,000-square-foot commercial retail center that would include retail and restaurants (Exhibit 3-3). This portion of the project site would be zoned as General Commercial. The primary purpose of the General Commercial district is to provide areas for wholesale, warehousing, and heavy commercial activities, including regional shopping centers, recreation and entertainment, and commercial activities that cater to tourists and highway travelers in areas near Interstate 5 and SR 99 and SR 120. With exception of the three parcels along Woodward Avenue, implementation of the project would require the removal of existing uses and structures located within the project site. Although not currently proposed, some retail uses may be replaced by office uses if the market demands. This change is consistent with the current and proposed General Commercial (GC) zoning of the site. The proposed land uses are described in greater detail in Section 4.1, "Land Use."

3.3.1 COMMERCIAL RETAIL CENTER

OVERVIEW

Maximum square footage of currently proposed uses to be developed on the project site is approximately 394,700 square feet of retail and approximately 55,300 square feet of restaurant space. The square footage and number of parking spaces currently proposed within each phase are a preliminary estimate at this time and are subject to change.



Source: Provided by Nadel Retail Architects, LLP, December 2008; adapted by EDAW in 2008

Project Site Plan at Buildout **Exhibit 3-3**

As shown in Exhibit 3-2, the commercial retail center would primarily face Atherton Drive, which would extend in an east-west direction across the site and would provide primary vehicular access to Phase 1 and 2. Phase 3 would be primarily accessed by two driveways on Union Road. Surface parking would be located throughout the commercial center. Other site features would include landscaping throughout the site and pedestrian plazas with site furnishings and decorative elements (e.g., raised planters and enhanced concrete paving). The lighting would be oriented at low levels to assist the pedestrian. No overhead lights are anticipated without proper shielding.

Proposed buildings would range from one to two stories and the maximum building height would be approximately 39 feet.

PHASE 1—NORTHERN RETAIL SITE

As shown in Exhibit 3-3, the proposed commercial center would extend in a north-south direction across the site, with primary vehicular access provided by the proposed extension of Atherton Drive.

The extension of Atherton Drive through the site (3.9 acres) and approximately 225,800 square feet of retail space north of the proposed Atherton Drive extension would be developed. Buildings in this portion of the site would range in size from approximately 3,500 square feet to approximately 31,400 square feet and would surround a central parking area that would include approximately 987 stalls.

PHASE 2—CENTRAL RETAIL SITE

The central retail site would consist of approximately 178,000 square feet of retail and restaurant space just south of the proposed Atherton Drive extension. Buildings in this portion of the site would also surround a central parking area that would include approximately 777 stalls. On-site buildings would range in size from approximately 5,600 square feet to approximately 65,000 square feet. Primary access to the site would be from Atherton Drive. In addition, an approximately 1.5-acre stormwater detention basin would be constructed adjacent to the western project boundary and would serve the entire project site.

PHASE 3—SOUTHERN RETAIL SITE

Improvements proposed as part of Phase 3 include the development of approximately 46,200 square feet of retail and restaurant space within the southern portion of the project site. Southern retail site buildings would range in size from approximately 5,000 square feet to approximately 19,700 square feet. The parking area for Phase 3 would include approximately 263 stalls and primary access to the site would be from two driveways on Union Road. A general plan amendment redesignating the parcel from Low Density Residential (LDR) to General Commercial (CG) is also proposed.

3.3.2 ACCESS, CIRCULATION, AND PARKING

As shown in Exhibit 3-3, the project would include a series of public access and circulation improvements to facilitate movement within the site and to and from surrounding areas. Primary access to the site would be provided via a new planned roadway, Atherton Drive. This east-west roadway would provide two lanes in each direction and would serve as a divider between the northern and central retail sites. Five entrances on Atherton Drive would provide ingress and egress to the site. Right-in- and right-out-only entrances/exits to the site on South Union Road would be provided. Also proposed is one full-access intersection (nonsignalized) between Phase 2 and 3 (Exhibit 3-3). For the southern retail site, entrances/exits would be provided on South Union Road and Woodward Avenue. Approximately 2,027 parking spaces would be provided in surface lots throughout the commercial retail center site.

3.3.3 LANDSCAPING AND PEDESTRIAN/PUBLIC AMENITIES

As discussed above, landscaping and other outdoor amenities would be incorporated throughout the proposed commercial site (Exhibit 3-4 and 3-5). Landscape features may include smaller ornamental trees and a mix of perennials and annuals along pedestrian paths and evergreen trees for screening and shading throughout the site. The plant materials selected would be indigenous to the region and would require modest amounts of water and maintenance. The City of Manteca requires a sensitive approach to development adjacent to State Route 120, to avoid presenting a "backside view" to motorists. To comply with Community Design Policy 14, preliminary design plans for the project include enhanced landscape areas provided at both the northwest and northeast corners of the site. These areas, would feature a tiered arrangement of turf, annuals, groundcover, and flowering shrubs, backed by flowering accent trees and conifers or large canopy shade trees. In the center of the northern façade, a planting area of 10 feet would be provided along the property line. Accent trees, such as Japanese Maple, Strawberry Tree, Eastern Redbud, and Italian Cypress, would be placed in this 10-foot planter to help screen the buildings. Adequate room would be provided in the planters to underplant the trees with groundcover and large shrubs. Dense planting and additional planters immediately behind the buildings will provide additional visual interruption of the rear façade. As shown in the preliminary planting legend of Exhibit 3-4 and 3-5, naturalized species with outstanding durability or visual interest have been selected for the project.

3.3.4 LIGHTING AND SIGNAGE

To satisfy the special signage needs of the project, the City has a signage program that would be applied for as part of the overall application. This program would allow the project to provide signage to accommodate the project's diversity of land uses. All signage would be appropriate to the scale of the proposed development and its frontage on major streets and SR 120. Specific development standards would be established by the City to define the maximum height, display size, and number of the various types of signage for each of the land use categories.

All project lighting is proposed to be a minimum maintained value of 1 foot candle measured at the ground plane and would not exceed an average value of 4 foot candles with a 10-foot maximum, except at selected entry or high-volume pedestrian areas.

3.3.5 INFRASTRUCTURE IMPROVEMENTS

STORMWATER

The City of Manteca currently operates a storm drainage system consisting of gravity storm drain lines that end at detention or retention facilities. Existing City detention facilities discharge into a network of open channels and underground pipes owned and maintained by the South San Joaquin Irrigation District (SSJID), which discharges stormwater to the French Camp Outlet Canal, located west of the City.

Implementation of the proposed project would affect several SSJID storm drainage facilities, including lateral "Ya" in the northern portion of the project site and "Drain 8" in the southern portion of the project site. As part of the project, these facilities would either be replaced with reinforced concrete pipe or relocated to public rights-of-way adjacent to or within the project site, subject to SSJID approval.

Storm drainage from on-site impervious surfaces would be collected and routed through vegetated swales, graded drain inlets, and a 20.04 acre-foot stormwater detention basin for entrapment of sediment, debris, and oil and grease as approved by the City of Manteca Public Works Department. The detention basin would be installed during the first phase of project development and would provide storage to attenuate peak stormwater flows and reduce the potential for downstream flooding.

Preliminary Plan Notes

1. This plan is diagrammatic, intended to convey the overall layout and character of the proposed design. Modifications to the size and/or layout of individual landscape elements may be necessary during the generation of construction documents.
2. An Irrigation System will be provided that will include an Automatic Irrigation Controller capable of multiple station operation and cycles, and will include a rain sensor to prevent overwatering during rain events. The Irrigation System will utilize overhead spray, rotor, and/or drip emission systems for application of water.
3. Trees planted within 5' of any wall or paved surface shall require the installation of root barriers.
4. Trees shall not be installed within 5' of a Fire Hydrant.
5. Trees shall not be planted within any designated drainage, sewer, or water easement.
6. Tree preservation and/or replacement shall comply with the requirements of the local Tree Preservation Ordinance and the recommendations of the Arborists Report.
7. Site lighting placements are diagrammatic, based solely upon photometric calculations, and shall be adjusted to avoid conflicts with shade trees.

Preliminary Plan Keynotes

1. Limit of parking lot area. Truck loading and maneuvering areas not included in parking lot and shade calculations.
2. Enhanced planting at entries and key locations, typical. Includes tiered arrangement of densely planted flowering shrubs, groundcovers, and annuals.
3. Site signage, typical. Refer to architectural signage program.
4. Property line, typical.
5. Detention basin, refer to Civil Engineering plans.
6. Ornamental shrubs and trees along rear frontage (facing Hwy 120 offramp) to screen truck loading ramps and accent building elevation.
7. Pedestrian plaza area with site furnishings and decorative elements such as seatwalls, raised planters, benches, and/or enhanced concrete paving, typical.
8. Enhanced paving to include stamped, banded, and/or colored asphalt.

Area Calculations

North

Total area of Site: 964,300 sq.ft. Landscaped area of Site: 168,530 sq.ft.

Percentage of landscaped area: 16.6% > Required percentage of landscaped area: 10%

Total area of Parking Lot: 460,476 sq.ft. Landscaped area of Parking Lot: 88,968 sq.ft.

Percentage of landscaped area: 19.3% > Required percentage of landscaped area: 12%

Shade Calculations

Ref: City of Manteca Shade Requirements
2008.11.18

30-35': Diameter Trees				
Area	Credit		Quantity	Sqft
F	962	SQF	144	138528
TO	722	SQF	25	18050
H	481	SQF	46	22126
O	240	SQF	2	480
TOTAL			217	179184

25-30': Diameter Trees				
Area	Credit		Quantity	Sqft
F	706	SQF	28	19768
TO	530	SQF	14	7420
H	354	SQF	61	21594
O	177	SQF	8	1416
TOTAL			111	50198

15'-20': Diameter Trees				
Area	Credit		Quantity	Sqft
F	314	SQF	12	3768
TO	236	SQF	0	0
H	157	SQF	26	4082
O	79	SQF	0	0
TOTAL			38	7850

TOTAL SHADE (sf)	237,232
TOTAL PAVED AREA (sf)	460,476
SHADE PERCENTAGE	51.52%



Preliminary Plant Legend

Symbol	Botanical Name	Common Name	Size
Large canopy shade trees (30-35')			
	Cinnamomum camphora	Camphor Tree	24" box
	Celtis sinensis	Chinese Hackberry	24" box
	Ulmus parvifolia 'Drake'	Chinese Elm	24" box
	Liriodendron tulipifera (proposed street tree)	Tulip tree	24" box
	Platanus acerifolia 'Bloodgood'	London Plane Tree	24" box
	Quercus schumardii	Schumard Red Oak	24" box
	Quercus virginiana	Southern Live Oak	24" box
Medium shade trees (25-30')			
	Alnus rhombifolia (at detention basins)	White Alder	15 gallon
	Arbutus 'Marina'	Arbutus	24" box
	Carpinus betulus 'Fastigiata'	European Hornbeam	24" box
	Pyrus calleryana 'Trinity'	Flowering Pear	36" box
	Tristania laurina	Water Gum	24" box
Evergreen screen trees (25-30')			
	Cedrus deodora	Deodar Cedar	24" box
	Pinus canariensis	Canary Island Pine	24" box
	Sequioa sempervirens 'Aptos Blue'	Coast Redwood	24" box
Accent trees (15-20')			
	Acer palmatum	Japanese maple	24" box
	Arbutus 'Marina'	Strawberry Tree	24" box
	Cercis canadensis	Eastern Redbud	24" box
	Cupressus sempervirens 'Stricta'	Italian Cypress	24" box
	Fagus sylvatica 'Fastigiata'	Dawyck Beech	24" box
	Elaeocarpus decipiens	Japanese Blueberry Tree	24" box
	Lagerstroemia indica	Crape Myrtle	24" box
	Prunus carolniana	Carolina Laurel Cherry (Standard)	24" Box
Shrubs			
	Abelia grandiflora	Glossy Abelia	5 gallon
	Agapanthus orientalis	Lily-of-the-Nile	1 gallon
	Buxus microphylla japonica	Japanese Boxwood	5 gallon
	Camellia japonica	Camellia sp.	5 gallon
	Citrus 'Calamondin'	Calamondin	15 gallon
	Dietes vegeta	Fortnight Lily	5 gallon
	Feijoa sellowiana	Pineapple Guava	5 gallon
	Festuca ovina 'Glauca'	Blue Fescue	1 gallon
	Hedera helix 'Hahn's Self Branching'	Variegated English Ivy	1 gallon
	Juniperus chinensis 'Gold Coast'	Gold Coast Juniper	5 gallon
	Liriope muscari	Lily Turf	1 gallon
	Ligustrum japonicum	Wax-leaf Privet	5 gallon
	Loropetalum chinense	Loropetalum	5 gallon
	Nerium oleander 'Petite Salmon'	Dwarf Oleandor	15 gallon
	Olea europea 'Little Ollie'	Dwarf Olive shrub	15 gallon
	Podocarpus m. maki	Shrubby Yew Pine	15 gallon
	Phormium tenax 'Atropurpureum'	New Zealand Flax	15 gallon
	Photinia fraseri	Red-Leaf Photinia	15 gallon
	Prunus caroliniana 'Bright 'n Tight'	Carolina Laurel Cherry	24" box
	Rhaphiolels indica spp.	India Hawthorn	5 gallon
	Rosa 'Iceberg'	White flowering rose	5 gallon
	Rosmarinus officinalis 'Tuscan Blue'	Rosemary	5 gallon
	Viburnum tinus	Laurustinus	15 gallon
	Xylosma congestum	Shiny Xylosma	15 gallon
	Yucca gloriosa	Spanish Dagger	15 gallon
Ground covers / Vines			
	Arctostapylos 'Emerald Carpet'	Carpet Manzanita	1 gallon
	Coprosma pumila 'Verde Vista'	Coprosma	1 gallon
	Distictis buccinatoria	Blood-red Trumpet Vine	5 gallon
	Ficus pumila	Creeping Fig	5 gallon
	Juniperus s. 'Broadmoore'	Broadmoore Juniper	1 gallon
	Parthenocissus tricuspidata	Boston Ivy	5 gallon
	Rosmarinus 'Huntington Blue'	Huntington Carpet Rosemary	1 gallon
	Trachelospermum jasminoides	Star Jasmine	1 gallon
	Turf: 90% long fescue, 10% Kentucky bluegrass blend.		

Source: Provided by HLA Group November 2008

Preliminary Landscape Plan—North **Exhibit 3-4**

Preliminary Plant Legend

Symbol	Botanical Name	Common Name	Size
Large canopy shade trees (30-35')			
	Cinnamomum camphora	Camphor Tree	24" box
	Celtis sinensis	Chinese Hackberry	24" box
	Ulmus parvifolia 'Drake'	Chinese Elm	24" box
	Liriodendron tulipifera (proposed street tree)	Tulip tree	24" box
	Platanus acerifolia 'Bloodgood'	London Plane Tree	24" box
	Quercus schumardii	Schumard Red Oak	24" box
	Quercus virginiana	Southern Live Oak	24" box
Medium shade trees (25-30')			
	Alnus rhombifolia (at detention basins)	White Alder	15 gallon
	Arbutus 'Marina'	Arbutus	24" box
	Carpinus betulus 'Fastigiata'	European Hornbeam	24" box
	Pyrus calleryana 'Trinity'	Flowering Pear	36" box
	Tristania laurina	Water Gum	24" box
Evergreen screen trees (25-30')			
	Cedrus deodora	Deodar Cedar	24" box
	Pinus canariensis	Canary Island Pine	24" box
	Sequioa sempervirens 'Aptos Blue'	Coast Redwood	24" box
Accent trees (15-20')			
	Acer palmatum	Japanese maple	24" box
	Arbutus 'Marina'	Strawberry Tree	24" box
	Cercis canadensis	Eastern Redbud	24" box
	Cupressus sempervirens 'Stricta'	Italian Cypress	24" box
	Fagus sylvatica 'Fastigiata'	Dawyck Beech	24" box
	Elaeocarpus decipiens	Japanese Blueberry Tree	24" box
	Lagerstroemia indica	Crape Myrtle	24" box
	Prunus caroliniana	Carolina Laurel Cherry (Standard)	24" Box
Shrubs			
	Abelia grandiflora	Glossy Abelia	5 gallon
	Agapanthus orientalis	Lily-of-the-Nile	1 gallon
	Buxus microphylla japonica	Japanese Boxwood	5 gallon
	Camellia japonica	Camellia sp.	5 gallon
	Citrus 'Calamondin'	Calamondin	15 gallon
	Dietes vegeta	Fortnight Lily	5 gallon
	Feijoa sellowiana	Pineapple Gauva	5 gallon
	Festuca ovina 'Glauca'	Blue Fescue	1 gallon
	Hedera helix 'Hahn's Self Branching'	Variegated English Ivy	1 gallon
	Juniperus chinensis 'Gold Coast'	Gold Coast Juniper	5 gallon
	Liriope muscari	Lily Turf	1 gallon
	Ligustrum japonicum	Wax-leaf Privet	5 gallon
	Loropetalum chinense	Loropetalum	5 gallon
	Nerium oleander 'Petite Salmon'	Dwarf Oleander	15 gallon
	Olea europea 'Little Ollie'	Dwarf Olive shrub	15 gallon
	Podocarpus m. maki	Shrubby Yew Pine	15 gallon
	Phormium tenax 'Atropurpureum'	New Zealand Flax	15 gallon
	Photinia fraseri	Red-Leaf Photinia	15 gallon
	Prunus caroliniana 'Bright 'n Tight'	Carolina Laurel Cherry	24" box
	Rhaphiolels indica spp.	India Hawthorn	5 gallon
	Rosa 'Iceberg'	White flowering rose	5 gallon
	Rosmarinus officinalis 'Tuscan Blue'	Rosemary	5 gallon
	Viburnum tinus	Laurustinus	15 gallon
	Xylosma congestum	Shiny Xylosma	15 gallon
	Yucca gloriosa	Spanish Dagger	15 gallon
Ground covers / Vines			
	Arctostapylos 'Emerald Carpet'	Carpet Manzanita	1 gallon
	Coprosma pumila 'Verde Vista'	Coprosma	1 gallon
	Distictis buccinatoria	Blood-red Trumpet Vine	5 gallon
	Ficus pumila	Creeping Fig	5 gallon
	Juniperus s. 'Broadmoore'	Broadmoore Juniper	1 gallon
	Parthenocissus tricuspidata	Boston Ivy	5 gallon
	Rosmarinus 'Huntington Blus'	Huntington Carpet Rosemary	1 gallon
	Trachelospermum jasminoides	Star Jasmine	1 gallon
	Turf: 90% long fescue, 10% Kentucky bluegrass blend.		

Shade Calculations

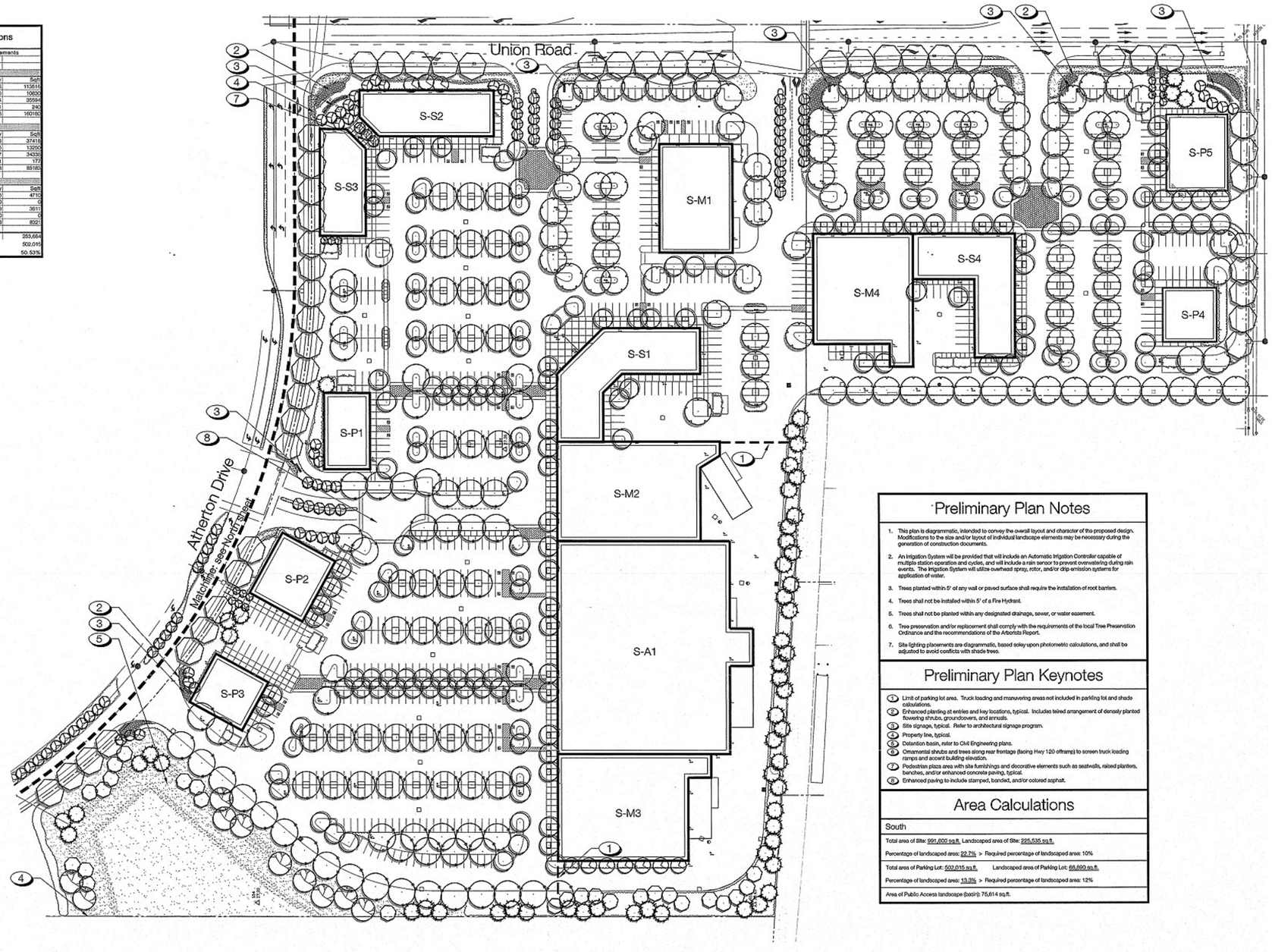
Ref: City of Manteca Shade Requirements
2008.11.18

30-35' Diameter Trees				
Area	Credit		Quantity	Sqft
F	962	SQF	116	111592
TQ	722	SQF	15	10830
H	481	SQF	74	35594
Q	240	SQF	1	240
TOTAL			206	160182

25-30' Diameter Trees				
Area	Credit		Quantity	Sqft
F	706	SQF	53	37418
TQ	530	SQF	25	13250
H	354	SQF	97	34338
Q	177	SQF	1	177
TOTAL			176	85183

15-20' Diameter Trees				
Area	Credit		Quantity	Sqft
F	314	SQF	15	4710
TQ	236	SQF	0	0
H	157	SQF	23	3611
Q	79	SQF	0	0
TOTAL			38	8321

TOTAL SHADE (sf)	253,684
TOTAL PAVED AREA (sf)	502,015
SHADE PERCENTAGE	50.53%



Preliminary Plan Notes

1. This plan is diagrammatic, intended to convey the overall layout and character of the proposed design. Modifications to the size and/or layout of individual landscape elements may be necessary during the generation of construction documents.
2. An Irrigation System will be provided that will include an Automatic Irrigation Controller capable of multiple station operation and cycles, and will include a rain sensor to prevent overwatering during rain events. The Irrigation System will utilize overhead spray, rotor, and/or drip emission systems for application of water.
3. Trees planted within 5' of any wall or paved surface shall require the installation of root barriers.
4. Trees shall not be installed within 5' of a Fire Hydrant.
5. Trees shall not be planted within any designated drainage, sewer, or water easement.
6. Tree preservation and/or replacement shall comply with the requirements of the local Tree Preservation Ordinance and the recommendations of the Arborists Report.
7. Site lighting placements are diagrammatic, based solely upon photometric calculations, and shall be adjusted to avoid conflicts with shade trees.

Preliminary Plan Keynotes

1. Limit of parking lot area. Truck loading and maneuvering areas not included in parking lot and shade calculations.
2. Enhanced planting at entries and key locations, typical. Includes tiered arrangement of densely planted flowering shrubs, groundcovers, and annuals.
3. Site signage, typical. Refer to architectural signage program.
4. Property line, typical.
5. Detention basin, refer to Civil Engineering plans.
6. Ornamental shrubs and trees along rear frontage (facing Hwy 120 offramp) to screen truck loading ramps and accent building elevation.
7. Pedestrian plaza area with site furnishings and decorative elements such as seatwalls, raised planters, benches, and/or enhanced concrete paving, typical.
8. Enhanced paving to include stamped, banded, and/or colored asphalt.

Area Calculations

South

Total area of Site: 991,600 sq.ft. Landscaped area of Site: 225,535 sq.ft.

Percentage of landscaped area: 22.7% > Required percentage of landscaped area: 10%

Total area of Parking Lot: 502,015 sq.ft. Landscaped area of Parking Lot: 66,990 sq.ft.

Percentage of landscaped area: 13.3% > Required percentage of landscaped area: 12%

Area of Public Access landscape (basin): 75,614 sq.ft.

0 75 150
FEET NORTH

G 08110131.01 006

Source: Provided by HLA Group November 2008

Preliminary Landscape Plan—South **Exhibit 3-5**

Total stormwater runoff for the site at buildout is estimated to be approximately 18 acre-feet and would be directed to the 20.04 acre-foot stormwater detention basin located adjacent to the western boundary of the project site. Stormwater from the detention basin would be discharged to the City's stormwater collection system (i.e., SSJID Drain 8). Additionally, the project would involve construction of a stilling well at the junction of Drain 8 and Drain 8A, and improvements to the City's Supervisory Control and Data Acquisition (SCADA) system to allow for enhanced monitoring of Drain 8 water levels.

WATER

Implementation of the project would result in construction of on-site water infrastructure improvements that would tie into the water lines located along Atherton Drive. The existing municipal water grid system would be extended and connected to the project site. Specifically, the 12-inch water line along Atherton Drive west of the project site would be extended east to the intersection of Atherton Drive and Union Road or the 12-inch water line on Union Road north of SR 120 would be extended south to the Atherton Drive Union Road intersection.

WASTEWATER

Implementation of the project would also result in the construction of on-site sewer lines that would tie into the existing sewer main line on Atherton Drive. The existing 12–inch sanitary sewer force main on Woodward Avenue and the pump at Antigua Pump Station have adequate capacity to serve this project (Personal Communication, Mark McAvoy, City of Manteca Public Works Department, February 2009).

ELECTRICITY AND GAS

The on-site service lines would be sized to meet the demands of the project, and public utility easements would be dedicated for all underground facilities. Extension of lines and construction of facilities to serve the project site would occur concurrently with development phases, and the location of this infrastructure would be identified in the final project design. All new on-site infrastructure would be installed underground, in conformance with City standards.

3.3.6 PROJECT GRADING AND CONSTRUCTION

The project would be built in three phases over approximately 44 months; construction is anticipated to begin in fall 2009 with completion of construction for all phases expected by summer 2013, depending on market demand.

Grading activities at the site would involve on-site balanced cut and fill. The total estimated quantity of fill material required is up to 60,000 cubic yards (cy). On-site finished slopes would range between 1.5% and 3.0% in the parking areas, and between 0.25% and 2.0% along the proposed extension of Atherton Drive.

During the primary construction period, the construction crew would consist of a maximum of 30 people. Construction equipment would include loaders, scrapers, blades, backhoes, paving machines, curb machines, concrete trucks, man lifts, forklifts, cranes, and various small site compressors and generators. Construction activities would occur between 7 a.m. and 7 p.m.

3.3.7 PROJECT HOURS OF OPERATION

Hours of operation for the project would be consistent with hours of operation that are typical for the proposed uses. Retail uses are anticipated to be in operation from 8 a.m. to 10 p.m. Restaurants are anticipated to operate between the hours of 10 a.m. to 11 p.m. The market would operate from approximately 8 a.m. to 12 a.m. In addition, the drive-thru restaurants are expected to operate between 5 a.m. until approximately 1 a.m.

3.4 REQUESTED ENTITLEMENTS

Implementation of the Union Crossing project would require several entitlements from the City of Manteca. Approvals required for the project include, but are not limited to, the following:

- a general plan amendment redesignating the 6.3-acre parcel (Phase 3 of the project) on the northwest corner of Union Road and Woodward Avenue from Low Density Residential (LDR) to General Commercial (GC);
- prezoning of the retail commercial site to GC;
- development agreement between the City and the developer;
- site development plan;
- tentative subdivision map;
- ministerial grading, foundation, and building permits;
- planned unit development;
- master sign program;
- prezone and annexation of the three residential parcels and the adjacent portion of Woodward Avenue where no development is proposed; and
- other agency permits to implement the proposed project, as may be required.

The project will require approval of annexation of the project site to the City of Manteca from the San Joaquin County Local Agency Formation Commission. Other agencies that may require permission or approvals may include the San Joaquin Valley Air Pollution Control District, South San Joaquin Irrigation District, U.S. Army Corps of Engineers, Central Valley Regional Water Control Board, U.S. Fish and Wildlife service, and California Department of Fish and Game. Please also refer to Section 1.4, 'Lead, Federal, Responsible and Trustee Agencies', of this document.

4 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

Sections 4.1 through 4.13 of this draft environmental impact report (EIR) present a discussion of existing conditions, environmental impacts associated with implementation of the project, mitigation measures to reduce the level of impact, and residual impacts (i.e., the remaining impacts after the imposition of any proposed mitigation measures). Issues evaluated in these sections consist of a full range of environmental topics originally identified for review in the notice of preparation (NOP) prepared for the Union Crossing project. The NOP is included as Appendix A. Sections 4.1 through 4.13 each include the following components.

- **Existing Conditions:** This subsection presents the existing environmental conditions on the project site and in the surrounding area as appropriate, in accordance with the California Environmental Quality Act Guidelines (State CEQA Guidelines) Section 15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation.

- **Regulatory Background:** This subsection presents information on the laws, regulations, plans, and policies that relate to the issue area being discussed. Regulations originating from the local, state, and federal levels are each discussed as appropriate.

- **Environmental Impacts:** This subsection identifies the impacts of the proposed project on the existing environment, in accordance with State CEQA Guidelines Sections 15125 and 15143. Before presenting an evaluation of impacts, the section describes the analysis methodology used, and the thresholds of significance used to identify impacts are then listed. Project impacts are identified alphanumerically and sequentially throughout this section. For example, impacts in Section 4.4 are identified as 4.4-1, 4.4-2, and so on. An impact statement precedes the discussion of each impact and provides a summary of the impact and its level of significance. The discussion that follows the impact statement includes the evidence on which a conclusion is made regarding the level of impact. The discussions of cumulative impacts and growth-inducing impacts are presented in Chapter 5 and Chapter 6, respectively.

- **Mitigation Measures:** This subsection identifies potentially feasible mitigation measures to reduce significant and potentially significant impacts of the proposed project, in accordance with State CEQA Guidelines Section 15002(a)(3), Section 15021(a)(2), and Section 15091(a)(1). Each mitigation measure is identified alphanumerically to correspond with the number of the impact being reduced by the measure. For example, Impact 4.3-1 would be mitigated with Mitigation Measure 4.3-1. This subsection also describes whether the mitigation measures would reduce impacts to less-than-significant levels. Any significant and unavoidable impacts are identified in this subsection, and are also summarized in Chapter 6.

- **Level of Significance After Mitigation:** This section identifies any significant impacts that would remain significant following implementation of the mitigation measures.

4.1 LAND USE

This section evaluates the environmental impacts of the proposed project on existing land uses. A description of the existing site characteristics and setting is followed by an analysis focused on the relationship between the project and existing plans and policies and the relationship with existing on-site and adjacent land uses.

4.1.1 ENVIRONMENTAL SETTING

PROJECT SITE

The project site is approximately 65 acres and is located in unincorporated San Joaquin County adjacent to and south of the city of Manteca (Exhibit 3-1). The project site is located immediately south of State Route (SR) 120, approximately 2 miles west of SR 99, and 4 miles east of Interstate 5. Existing uses on the project site include four rural residences, orchards, row crops, dry-land and irrigated pastures, and fallow fields. Some of the residential properties contain additional accessory structures including barns and shops.

The project site is located within unincorporated San Joaquin County and within the sphere of influence and Primary Urban Service Boundary of the city of Manteca. The project includes proposed annexation of the site to the City of Manteca (City). Currently, the entire project site is designated as Low Density Residential (R/L) in the *2010 San Joaquin County General Plan* (County General Plan) (Exhibit 4.1-1). As defined by the County General Plan, the R/L designation would accommodate single-family neighborhoods with detached dwelling units at a density of two to six units per gross acre.

San Joaquin County's (County's) Zoning Map indicates the entire site is zoned as Agriculture-Urban Reserve (AU-20). According to the County Zoning Code, this zone is intended to retain in agriculture until the appropriate time those areas planned for future urban development to facilitate compact, orderly growth and to ensure the proper timing and economical provision of services and utilities.

The *City of Manteca General Plan 2023* (City General Plan) contains land use designations for areas of the unincorporated county within the City's sphere of influence. The City General Plan designates the portion of the project site north of the southern three parcels and Phase 3 (Exhibit 3-3) as General Commercial (GC). As defined by the City General Plan (City of Manteca 2003), the GC designation accommodates wholesale, warehousing, and heavy commercial uses, highway-oriented commercial retail, public and quasi-public uses, and similar and compatible uses. The designation is also intended to accommodate visitor commercial, lodging, commercial recreation, and public gathering facilities, such as amphitheaters, or public gardens. The City General Plan designates the southern three parcels and the Phase 3 area of the project site as Low Density Residential (LDR).

The LDR designation accommodates land use with a mix of dwelling unit types and character determined by the individual site and market conditions. The density range of 2.1 to 8.0 dwelling units per gross acre allows substantial flexibility in selecting dwelling unit types and parcel configurations to suit particular site conditions and housing needs.

Because the project site lies within the unincorporated county, the project site has not received a zoning classification from the City of Manteca. As part of the annexation process the project site would receive a prezoning designation from the City. This classification is required by state law to be consistent with the General Plan or a general plan amendment performed simultaneously with the annexation process.

ADJACENT LAND USES

The site is bounded on the north by SR 120 and low-density single-family residential subdivisions. Land south of the project site across Woodward Avenue includes rural residences and agricultural uses. To the east of the project site are existing agricultural lands, which are in the process of being developed as a commercial and residential mixed use development (the Lifestyle Outlets at Manteca) and a single-family subdivision (Antigua). Farther to

the east is the Veritas Elementary School. Adjacent lands to the west of the project site include rural residences and irrigated fields and pasture. Farther west is a low-density, single-family subdivision.

Agricultural uses remain the predominant land use in the project vicinity. However, with adoption of the City General Plan in 2003 and designation of the area for urban land uses, many of these agricultural lands are being converted to urban development.

4.1.2 REGULATORY SETTING

The land use planning and zoning authority of local jurisdictions in California are set forth in the state's planning laws. The project site is located in unincorporated San Joaquin County, but within the City of Manteca's sphere of influence and Primary Urban Service Boundary. While the project site is currently under the planning jurisdiction of San Joaquin County, the project proposes that the City of Manteca annex the site. If approved, the annexation would place the project site under the jurisdiction of the City. For this reason the analysis of the regulatory setting focuses on the relevant polices of the City of Manteca.

STATE PLANNING AND ZONING LAWS

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. The general plan addresses a broad range of topics, including, at a minimum, land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area. The general plan is a long-range document that typically addresses the physical character of an area over a 20-year period. Although the general plan serves as a blueprint for future development and identifies the overall vision for the planning area, it remains general enough to allow for flexibility in the approach taken to achieve the plan's goals.

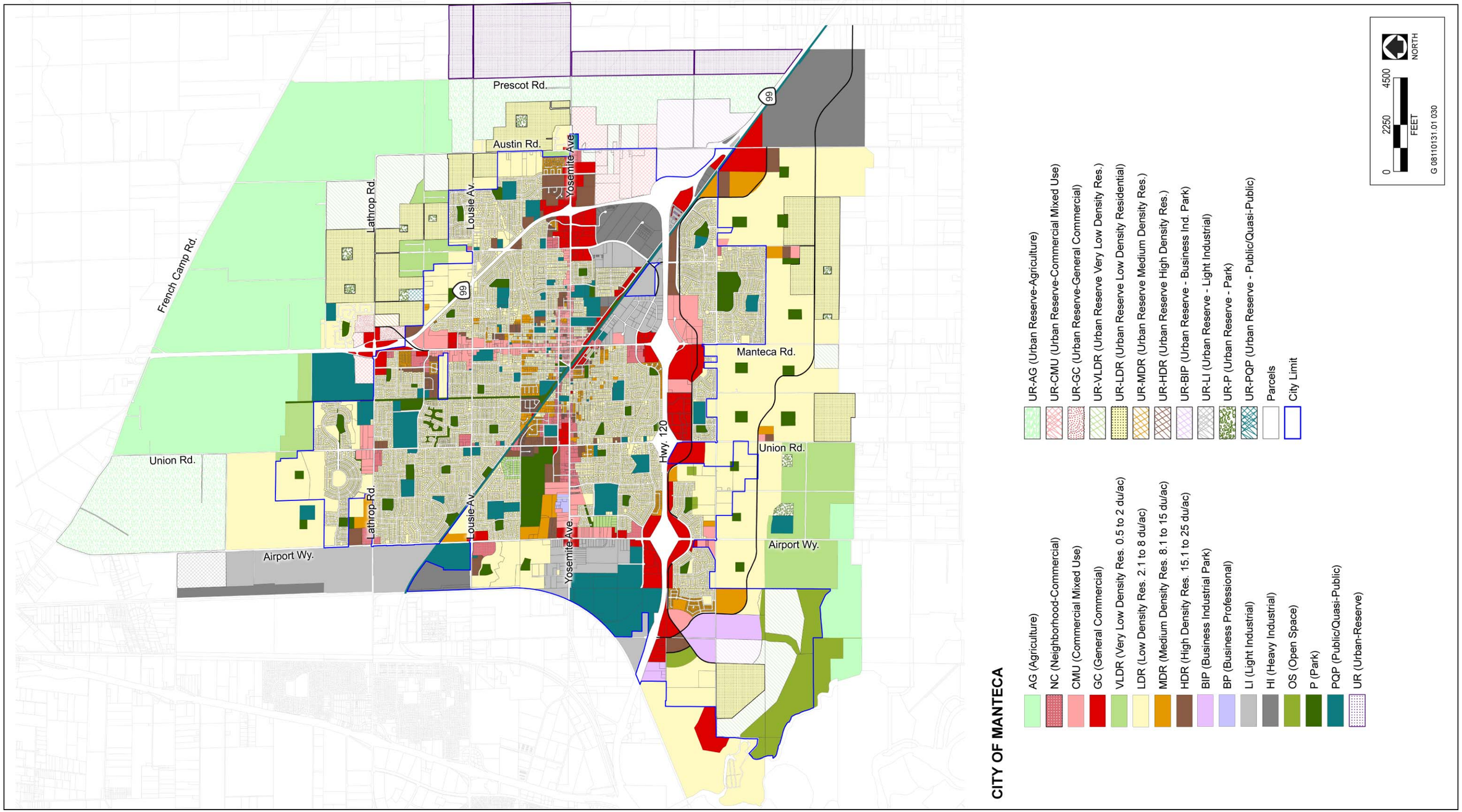
The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific district, are required to be consistent with the general plan and any applicable specific plans. When amendments to the general plan are made, corresponding changes in the zoning ordinance may be required within a reasonable time to ensure the land uses designated in the general plan would also be allowable by the zoning ordinance (Government Code, Section 65860, subd. [c]).

SAN JOAQUIN COUNTY LOCAL AGENCY FORMATION COMMISSION

The San Joaquin County Local Agency Formation Commission (LAFCo) is responsible for coordinating changes in local governmental boundaries including annexations, detachments of territory, and incorporations of cities. The San Joaquin County LAFCo is also charged with developing and updating spheres of influence for each city. Spheres are planning tools used to provide guidance for individual proposals involving jurisdictional changes and are intended to encourage efficient provision of community services and prevent duplication of service delivery. An area must be within a city sphere of influence for a city to annex it. The mission of the San Joaquin County LAFCo is to encourage the orderly development and reorganization of local government agencies, to preserve agricultural land, and to discourage urban sprawl.

SAN JOAQUIN COUNTY GENERAL PLAN

As stated above, while the project site is currently under the jurisdiction of San Joaquin County, the project proposes that the City of Manteca annex the site. For this reason this analysis examines relevant policies in the City General Plan and does not examine County General Plan land use polices.



Source: Provided by the City of Manteca in 2009; adapted by EDAW in 2009

Manteca General Plan Land Use Designations **Exhibit 4.1-1**

CITY OF MANTECA GENERAL PLAN

The City General Plan includes the following policies related to land use that are relevant to this analysis:

- **Policy LU-P-3:** The City shall encourage a pattern of development that promotes the efficient and timely development of public services and facilities.

- **Policy LU-P-4:** The City shall encourage a development pattern that is contiguous with the boundary of the City.

- **Policy LU-P-7:** All lands within the Primary and Secondary Urban Service Boundary lines to be ultimately developed to urban standards should be developed under the jurisdiction of the City of Manteca. Pending annexation to the City, all such lands should remain in agricultural, open space, or other low intensity uses. The City shall work cooperatively with the County to ensure that development approved by the County on unincorporated lands within the Primary and Secondary Urban Service Boundary lines is developed according to standards consistent with those of the City of Manteca. The City shall request all proposals for development on unincorporated lands within the Primary and Secondary Urban Service boundary lines be referred to the City for review and comment prior to formal consideration by the County.

- **Policy LU-P-8:** The City will review proposals for residential, commercial or industrial development in unincorporated areas within the General Plan Study Area. Urban development should occur within the City boundary.

- **Policy LU-P-9:** The City will consider applications for annexations that:
  - are contiguous with city boundaries and provide for a logical expansion of the city;
  - create clear and reasonable boundaries;
  - ensure the provision of adequate municipal services;
  - reflect a long-term fiscal balance to the city and its residents,
  - when reviewed cumulatively with other annexations;
  - are consistent with State law and San Joaquin County Local Agency Formation Commission standards; and
  - are consistent with the General Plan.

- **Policy LU-P-19:** The City shall promote and assist the maintenance and expansion of Manteca's commercial sector to meet the needs of both Manteca residents and those living within Manteca's market area.

- **Policy LU-P-20:** The City shall promote the establishment, maintenance, and expansion of businesses in Manteca that generate high retail sales taxes as important contributors to the local economy.

- **Policy LU-P-22:** New commercial development serving citywide and regional shopping needs shall be located along major arterial streets.

- **Policy LU-P-23:** New visitor-serving commercial development shall be located in areas with easy access to freeway interchanges.

- **Policy LU-P-24:** New commercial development shall be designed to avoid the appearance of strip development.

- **Policy LU-P-49:** The City shall give priority to in-fill development and new development contiguous to existing developed areas, whenever practical.

CITY OF MANTECA ZONING ORDINANCE

The purpose of the City of Manteca Zoning Ordinance (1992) is to:

- protect and to promote the public health, safety, peace, comfort, convenience, prosperity, and general welfare;
- provide a precise guide for the physical development of the city consistent with the goals and policies of the general plan;
- foster workable relationship among land uses;
- promote the stability of existing land uses that conform with the general plan;
- ensure that public and private lands are ultimately used for the purposes that are most appropriate and most beneficial from the standpoint of the city as a whole;
- facilitate the appropriate location of community facilities and institutions; and
- safeguard and enhance the appearance of the city.

As discussed in "Environmental Setting" above, the project site is not zoned by the City because the site lies outside the Manteca city limits. During the annexation and prezone process, City would give the project site a zoning classification. State law requires the zoning classification to be consistent with the general plan land use diagram or subsequent general plan amendments.

4.1.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The focus of this land use analysis is on land use impacts that would result from implementation of the project. Evaluation of potential land use impacts of the project were based on a review of the planning documents pertaining to the project study area, including the County and City General Plans and zoning ordinances, consultation with appropriate agencies, and field review of the project site and surroundings.

The project site is currently located in unincorporated San Joaquin County, within the sphere of influence of the City of Manteca. The project would require the San Joaquin County LAFCo to approve the City's annexation of the project site. LAFCo would evaluate the suitability of the site for the proposed annexation. Furthermore, the proposed project would need to be found compatible with the City General Plan policies regarding the annexation of new territories. City General Plan policy LU-P-9 outlines the criteria for annexations. The policy is detailed above under "Regulatory Setting."

In addition to the annexation process, the proposed project would need the City to approve City General Plan amendments to make the land use designations of portions of the project site compatible with the proposed uses. The project is proposed to be developed in three phases: Phase 1 encompasses the northern portion of the site; Phase 2 encompasses the central portion and Phase 3 the southern portion. Phase 1 would consist of approximately 225,800 square feet of retail and restaurant space on approximately 22 acres; Phase 2 would consist of approximately 178,000 square feet of retail and restaurant space on approximately 20 acres; and Phase 3 would consist of 46,200 square feet of retail and restaurant space on approximately 6 acres (see Exhibit 3-3). Although not currently proposed, some retail uses in Phase 3 may be replaced by office uses if the market demands.

The City General Plan currently designates the Phase 1 portion of the project site for General Commercial land uses, the Phase 2 portion for General Commercial uses, and the Phase 3 portion for Low Density Residential uses. The project includes commercial uses on all three portions of the project site. The Phase 3 portion of the site would require a general plan amendment to allow the proposed commercial development. If approved the amendment would redesignate the Phase 3 portion of the project site to a General Commercial designation.

The GC category provides for wholesale, warehousing, and heavy commercial uses, highway-oriented commercial retail, public and quasi-public uses, and similar compatible uses. The designation is also intended to accommodate visitor commercial, lodging, commercial recreation, and public gathering facilities. Proposed project uses, including retail, restaurants, and potentially office space, would be consistent with the GC land use designation. City Council approval of a General Plan amendment is necessary to eliminate the existing conflict with the current land use designation.

In addition to the three phases described above, the project also proposes the annexation and prezone of three residential parcels (10.9 acres) and a portion of Woodward Avenue (1.7 acres) in the southwestern portion of the project site. No new development is proposed at Woodward Avenue and for these three parcels. The current City General Plan land use designation for these parcels is LDR (Low Density Res. 2.1 to 8 du/ac) as shown on Figure 4.1-1. A general plan amendment would not be needed for these parcels.

The City of Manteca Zoning Map does not currently provide zoning districts for the project site as it currently is outside the Manteca city limits. Prezoning would be considered concurrently with the review of the annexation and general plan amendment requests. The project proposes that the Phase 1, 2, and 3 portions of the project site be prezoned as General Commercial. The primary purpose of the General Commercial district is to provide areas for recreation, entertainment, and commercial activities that cater to tourists and highway travelers in areas near Interstate 5 and SR 99 and 120. General Commercial districts should be located on major arterials and near highways. Proposed project uses, such as those described above, would be consistent with the General Commercial zoning district. The project proposes that the three parcels on Woodward Avenue be prezoned as Single-Family Residential (R-1). The intended use of the Single-Family Residential (R-1) zoning district is residential single-family homes. The existing residential single-family homes would conform with the Single-Family Residential (R-1) zoning district. In the future these residential parcels could be subdivided to the maximum extent allowed under the R-1 zoning district. The R-1 district has a minimum lot size of 6,000 square feet.

Availability of organized community services and water supplies is analyzed in Section 4.10, “Public Services and Utilities.” Social, economic, and other effects on adjacent areas are described throughout this document, to the extent required by CEQA, including Section 6.2, “Growth-Inducing Impacts.” With the proposed annexation, general plan amendment, and the establishment of zoning district classifications, the proposed project would be consistent with the City’s land use and zoning designations.

THRESHOLDS OF SIGNIFICANCE

The project would result in significant land use and planning impacts if it would:

- physically divide an established community.

The other land use issue concerns whether the project would be consistent with plans and policies adopted for the purpose of avoiding environmental impacts. This issue is addressed in each technical section of this DEIR as appropriate (see policies pertaining to these resources in each technical section). The project’s consistency with an adopted habitat conservation plan is discussed in Section 4.5, “Biological Resources.” Therefore, these issues are not discussed further in this section.

IMPACT ANALYSIS

IMPACT 4.1-1 Potential for Division of an Existing Community. *The project would not physically divide an established community. Although one of the rural residences would be removed from the site, the existing rural residences and associated outbuildings do not constitute a defined community. For this reason, this impact is considered less than significant.*

The project would not physically divide an established community. The project would be located in a primarily agricultural area adjacent to developed portions of the city of Manteca and within the City's sphere of influence and Primary Urban Service Boundary. The project site is also located on a freeway and a major arterial road at the intersection of SR 120 and South Union Road. Because of its location, the project would be consistent with City General Plan policies LU-P-3, LU-P-4, LU-P-22, LU-P-23, and LU-P-49. There are approximately four rural residences located within the project site. These residences are not known as a community. The proposed project would establish new commercial development and would result in the removal of one of the residences. Site design takes into account the remaining three rural residences located in the southwesternmost corner of the project site, but would not remove or inhibit access of the remaining parcels. In the vicinity of the proposed project, low-density single-family residential subdivisions exist to the north, directly across SR 120, and on South Union Road directly to the east of the site. In addition, a small residential subdivision exists approximately one-quarter mile to the west of the site. Numerous rural residences continue to exist south and west of the project site. Because the project would not divide an established community as no communities are located on the site, this impact is considered **less than significant**.

4.1.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.1-1: Potential for Division of an Existing Community.

4.1.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The project's land use impacts would be less than significant. No mitigation is required.

4.2 VISUAL RESOURCES

This section describes the existing visual characteristics of the project site and evaluates the visual effects of implementing the project. The visual impact analysis considers existing scenic resources and the potential visibility of the site from surrounding areas including both the physical characteristics of the development and lighting and glare. The descriptions of the existing visual setting are accompanied by photographs of representative views taken during a site visit in September 2008 (Exhibits 4.2-2 through 4.2-4). Photograph locations are shown in Exhibit 4.2-1. The lighting impacts described in this section are based on the lighting analyses prepared for this DEIR by Auerbach-Glasow-French Lighting Consultants in 2009. Please refer to Appendix B for the complete lighting study including exhibits and supporting information.

4.2.1 ENVIRONMENTAL SETTING

VISUAL CHARACTER OF THE PROJECT SITE

The project site is located in the southwestern portion of the city of Manteca (see Exhibit 3-1 in Chapter 3, "Project Description") and is currently a fallow field in the areas designated for Phase 1 and 2 development (Exhibit 3-3). The area designated for Phase 3 development is currently an orchard. The topography of the site is generally flat with an elevation of 30 feet above mean sea level.

The site is generally bounded by the State Route (SR) 120 exit ramp to the north; Woodward Avenue, agricultural land, and a rural residential homesite to the south; South Union Road and construction of residential and commercial land uses to the east; and agricultural land and a residential homesite to the west (see Exhibit 3-2 in Chapter 3, "Project Description"). The project site is located on a tract of land in an expanding urban area developing in the southern portion of the city and adjacent to the south side of SR 120. Views of the site from local nearby roadways generally consist of fallow agricultural land in the northern portions and an orchard in the southernmost portion.

South Union Road and Woodward Avenue are local roadways that provide north-south and east-west access to the project site. South Union Road also provides access to SR 120. The future extension of Atherton Drive will also provide central access to the project site.

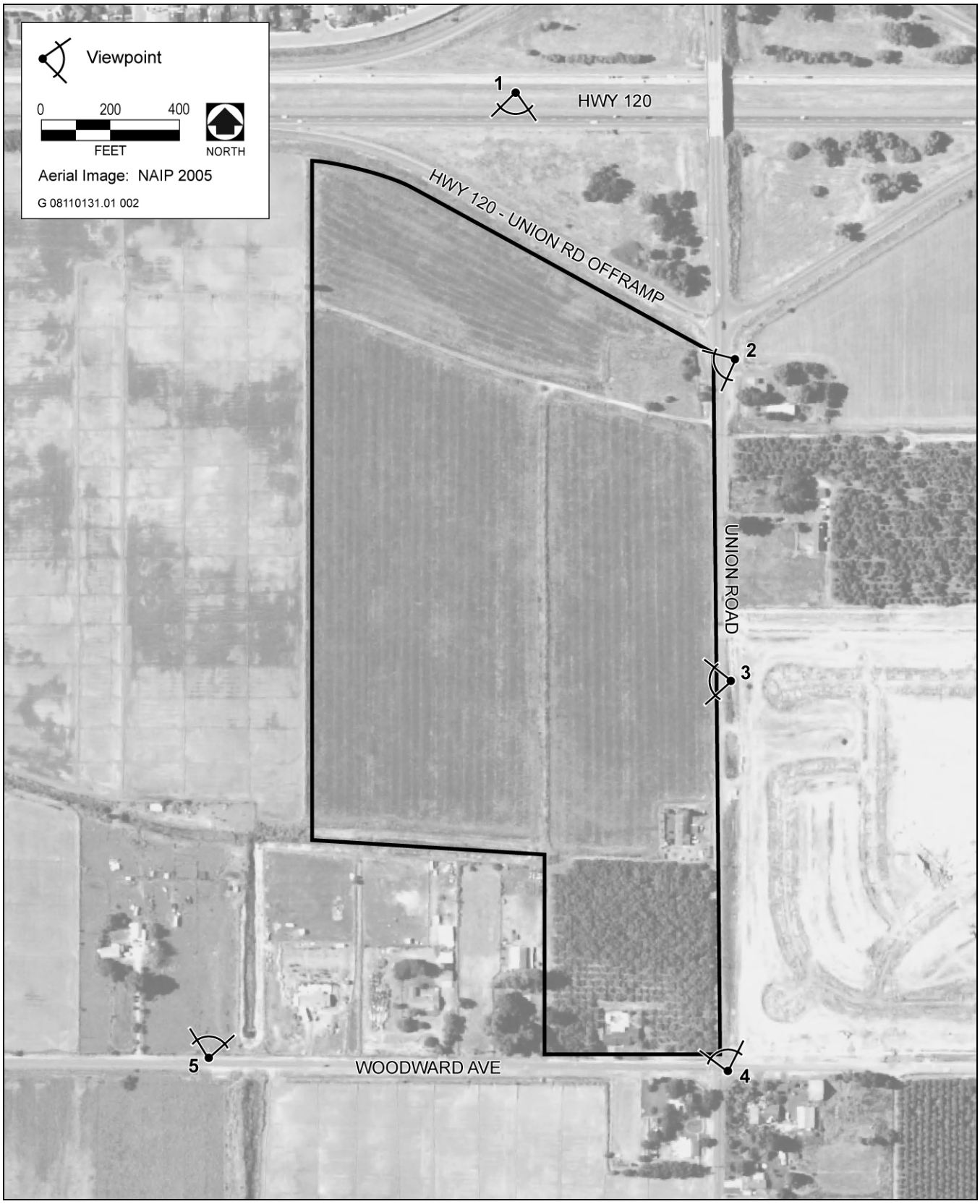
VISUAL CHARACTER OF THE SURROUNDING AREA

The city of Manteca is centrally located in the Central Valley near the northern end of the San Joaquin Valley, in San Joaquin County. Because the topography of Manteca is relatively flat, views of the cityscape and surrounding landscape are limited to localized views rather than broad landscape views. Similarly, views of the site from the surrounding areas within the city are limited and localized.

SR 120 is located adjacent to the north boundary of the site. The Lifestyle Outlets at Manteca, a 72-acre open aire, main street retail development anchored by Bass Pro Shops is located immediately east of the project site. A developing single-family residential subdivision is located directly to the west and rural residential land uses and agricultural land area located adjacent to and south of the site. The general character of the surrounding area is described below.

- **North:** The SR 120–South Union Road off-ramp, a one-lane roadway, is located immediately north and parallel to the project site. A chain-link fence and several feet of road right-of-way separate this off-ramp from the site. SR 120, a four-lane state highway, is located to the north of this off-ramp.

- **East:** The recently developed Lifestyle Outlets at Manteca is located immediately east of the project site across Union Road. This development consists of approximately 750,000 square feet of high-quality retail space.



Source: Adapted by EDAW in 2008

Representative Viewpoint Locations **Exhibit 4.2-1**



Viewpoint 1—View of the project site looking south from SR 120 highway. View of the northern portion of the site is shown.



Viewpoint 2—View of the project site looking southwest from the intersection of SR 120–South Union Road off-ramp and South Union Road. The northern portion of the site is shown.

Representative Photographs **Exhibit 4.2-2**



Viewpoint 3—View of the project site looking west from South Union Road just south of Atherton Drive intersection. View of the central portion of the site is shown.



Viewpoint 4—View of the project site looking northwest from South Union Road and Woodward Avenue intersection. View of the southeastern portion of the project site is shown.

Representative Photographs **Exhibit 4.2-3**



Viewpoint 5—View of the project site looking north from Woodward Avenue. Distant view of the central and northern portions of the project site is shown.

Representative Photographs **Exhibit 4.2-4**

- **South:** Areas to the south of the site (south of Woodward Avenue) include rural, large-lot, single-family residential land uses, vacant parcels, and fallow and active agricultural land.

- **West:** The area to the west includes active agricultural land that is currently growing row crops. Farther to the west is a residential subdivision.

REPRESENTATIVE VIEWPOINTS

Views of the project site from surrounding areas are limited because of the relatively flat surrounding topography and the presence of existing development and vegetation. Distant views of the site are obstructed by surrounding residential and commercial development and vegetation.

Open views of the site are generally limited to roadways in the project area. Representative off-site areas with views of the project site can be defined by several viewpoints. These viewpoints represent areas where publicly accessible direct views of the site were available (Exhibit 4.2-1). The analysis presented below does not attempt to document how views of the site would change from every possible viewpoint in the local area but rather depicts the project from the key, representative viewpoints. The general nature of existing views of the project site from the key representative viewpoints is described below.

Views from SR 120 (Viewpoint 1)

SR 120 is located north of the project site and north of the SR 120–South Union Road off-ramp. Unobstructed views of the project site are available from the highway overcrossing on South Union Road. Motorists traveling southbound along South Union Road have direct, unobstructed views of the entire project site. A residential subdivision and commercial uses under development located east of the project site across South Union Road currently dominate the middle ground (not shown in exhibits). However, the project site also dominates middle-ground views because of the large, vacant area it provides. Large-lot residential and agricultural lands (fallow and active) are visible in the background (Exhibit 4.2-2, Viewpoint 1).

Views from the SR 120–South Union Road Off-Ramp and South Union Road Intersection (Viewpoint 2)

The SR 120– South Union Road off-ramp is located at the northern boundary of the site. Unobstructed views of the project site are available to motorists traveling southbound along South Union Road. From this viewpoint, areas beyond the project site are clearly visible in the middle ground and background including residential housing and fallow and active agricultural land (Exhibit 4.2-2, Viewpoint 2).

Views from South Union Road and Woodward Avenue Intersection (Viewpoints 3 and 4)

South Union Road runs in a north-south direction and is adjacent and parallel to the eastern boundary of the project site, while Woodward Avenue runs in a east-west direction and is adjacent and parallel to the southern boundary of the project site. From the intersection of South Union Road and Woodward Avenue, an orchard on the project site dominates foreground views. The project site is further visible in the middle ground along with a residential subdivision located along the eastern side of South Union Road (Exhibit 4.2-3, Viewpoints 3 and 4).

Views from Woodward Avenue West of South Union Road (Viewpoint 5)

Woodward Avenue runs in an east-west direction and is adjacent and parallel to the southern boundary of the project site. Fallow agricultural land is visible in the foreground. The northern and central portions of the project site are visible in the middle ground along with adjacent agricultural land, while SR 120 is visible in the background (Exhibit 4.2-4, Viewpoint 5).

LIGHT AND GLARE

No lighting exists on the project site. Existing nighttime lighting sources near the site consist of street lighting along South Union Road and Atherton Drive east of the site. In addition, parking lot lighting and building lighting associated with the Lifestyle Outlets at Manteca adjacent and east of the project is a substantial nighttime lighting source in the area. In general, dominant nighttime lighting sources in the project area originate from SR 120, retail shopping center lighting, street lighting along South Union Road and Atherton Drive, and a residential subdivision located across South Union Road.

4.2.2 REGULATORY BACKGROUND

CALIFORNIA DEPARTMENT OF TRANSPORTATION

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of this program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to highways.

No state-designated highways or eligible routes or roadways are located in the project area. The nearest state-designated highway segment is Interstate 5 from SR 152 to SR 205, approximately 15 miles southwest of the project area (Caltrans 2008). Views of the project area from this segment of I-5 are not available because of the extended distance to the site and intervening topography. Neither SR 99, located in the eastern part of the project area, nor SR 120, located south of the project site, are state-designated scenic highways.

City of Manteca General Plan 2023

The *City of Manteca General Plan 2023* (City General Plan) outlines goals and policies associated with aesthetic resources. The following policies from the Community Design Element are relevant to the project:

- **Policy CD-P-14:** Establish design guidelines for non-residential uses within 200 feet of SR 99 and SR 120. The guidelines should address the following concepts.
  - New office and commercial land use shall provide attractive landscaping, lighting, and signage adjacent to all buildings oriented to SR 99 and SR 120.
  - Encourage buildings that include attractive focal elements, such as a tower or articulated roofline in each non-residential development adjacent to SR 99 or SR 120 to serve as visual landmarks.
  - New non-residential buildings oriented to SR 99 and SR 120 shall provide an attractive façade similar in articulation, and using the same materials and colors, as the primary façade of the building.
  - Truck loading and refuse collection areas and adjacent to SR 99 and SR 120 shall be screened from view.
  - The landscape along SR 120 and SR 99 will reflect the natural character of the region in the selection of trees and groundcover.
- **Policy CD-P-35:** Architectural elements that contribute to a building's character, aid in climate control, and enhance pedestrian scale are encouraged. Examples include canopies, roof overhangs, projections or recessions of stories, balconies, reveals, and awnings.
- **Policy CD-P-36:** Encourage the creation of an urban forest comprised of street trees, residential lot trees, and trees in non-residential parking lots and other public open space.

- **Policy CD-P-37:** Commercial centers should provide for convenient, attractive pedestrian access from street fronts and from adjacent commercial, office, and residential land uses.

- **Policy CD-P-38:** Commercial centers should provide for convenient, attractive pedestrian access within the center with dedicated pedestrian ways between all buildings and pedestrian spaces such as plazas, courtyards, and terraces at natural gathering areas within the site.

- **Policy CD-P-44:** Provide minimal levels of street, parking, building, site, and public area lighting to meet safety standards and provide direction.

- **Policy CD-P-45:** Provide directional shielding for all exterior lighting to minimize the annoyance of direct or indirect glare.

- **Policy CD-P-47:** The City shall adopt light and glare standards that minimize the creation of new light source and the annoyance of direct and indirect glare.

The City of Manteca (City) Zoning Ordinance addresses exterior lighting and glare in Section 17.13.040.D and Section 17.15.090.G of the City Municipal Code:

17.13.040.D. Glare.

1. No direct glare shall be permitted with the exception that parking areas and walkways may be illuminated by luminaries so hooded or shielded that the maximum angle of the cone of direct illumination shall be sixty degrees if the luminary is not less than six feet above the ground. Such luminaries shall be placed not more than twenty feet above ground level and shall not be in excess of ten foot candles.
2. Indirect glare shall not exceed that value which is produced by an illumination of the reflecting surface, not to exceed:
   a) 10 foot-candle (maximum).
   b) 4 foot-candle (average).
   c) 1 foot-candle (minimum).
   d) Any light or combination of lights shall not cast light on residential property and shall not exceed 0.0 foot-candles as measured from said property.

17.15.090.G. Lighting.

1. Public parking areas designed to accommodate ten or more vehicles in other than vehicle sales areas shall provide a minimum lighting level of one foot candle of maintained illumination on the parking surface during the hours of use between one-half hour before dusk and one-half hour after dawn.

2. Any parking area illumination, including security lighting, shall be so arranged as to reflect away from adjoining properties and rights-of-way.

4.2.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

This visual impact analysis is based on a field survey and review of existing representative viewpoints of the project site in relation to the surrounding vicinity. The elements of the project were compared to existing views of the site to determine how the project would change foreground, middle ground, and background views where

appropriate. The project was also reviewed for its overall visual impacts using the standards of quality, consistency, and symmetry typically used for a visual assessment.

In addition, this analysis is based on a quantitative lighting study prepared for the project site (see Appendix B). Lighting levels, light trespass, and high-angle glare were assessed for the parking lot and adjacent areas. Calculations were run to assess horizontal and vertical light levels, glare, and light trespass. Results were analyzed based on lighting recommendations published by the International Engineering Society of North America (IESNA), California Energy Commission (CEC), and the International Dark-Sky Association (IDA).

The IESNA handbook contains lighting recommendations for parking lots. Table 4.2-1 presents lighting recommendations from Section 22 of the IESNA Handbook. For glare, the IDA recommends that the maximum intensity in one's field of view shall not exceed 10 times that of the average lighting level.

The maximum allowed lighting power densities prescribed by the CEC in Title 24 are based upon the lighting zone the site is located within. According to the CEC, those areas not designated as a park, recreation area, or wildlife preserve, or otherwise redefined by a local jurisdiction, shall be considered in Lighting Zone 2 if the property is located in a rural census tract, and Lighting Zone 3 if the area is located in an urban census tract. The project site was considered an urban tract and is considered in Lighting Zone 3. Title 24 allows a maximum of 0.15 watt per square foot (W/sq. ft.) for site lighting in Lighting Zone 3.

The visual impacts were compared against the thresholds of significance discussed below.

Table 4.2-1
Recommended Maintained Illuminance for Parking Lots

Criteria	Recommended Value
Recommended Average Horizontal Illuminance at pavement[1]	1.0 fc
Minimum Horizontal Illuminance at pavement[2]	0.2 fc
Horizontal Uniformity Ratio, Maximum-to-Minimum[3]	20:1
Minimum Vertical Illuminance at 5' above pavement[4]	0.1 fc

Note: Illuminance is the total amount of visible light illuminating (incident upon) a point on a surface from all directions above the surface. This "surface" can be a physical surface or an imaginary plane. Therefore, illuminance is equivalent to irradiance weighted with the response curve of the human eye.

fc = foot candle

[1] Average Horizontal Illuminance at pavement: The mean average illuminance within a given area, as measured at ground level, parallel to the ground.

[2] Minimum Horizontal Illuminance at pavement: The lowest measured illuminance within a given area, as measured at ground level, parallel to the ground.

[3] Horizontal Uniformity Ratio, Maximum-to-Minimum: The brightest measured illuminance in a given area divided by the lowest measured illuminance. The more even the lighting is across the area, the lower the ratio will be.

[4] Minimum Vertical Illuminance at 5' above pavement: The lowest measured illuminance within a given area, as measured 5' above ground level and perpendicular to the ground.

Source: IESNA Handbook, 2000, 9th Edition, Section 22 (see Appendix B)

THRESHOLDS OF SIGNIFICANCE

The project would result in significant visual impacts if it would:

- have a substantial adverse effect on a scenic vista;
- substantially degrade the existing visual character or quality of the site and its surroundings including resources adjacent to a State Scenic Highway; or
- create a new source of substantial light or glare that would exceed IESNA lighting standards for commercial and parking lot facilities.

IMPACT ANALYSIS

IMPACT 4.2-1 **Impacts on a Scenic Vista.** No views on or near the project site would be considered a scenic vista. *Therefore, development of the project would not alter or obscure views of a scenic vista. This would be a* ***less-than-significant*** *impact.*

A scenic vista is generally considered a view of an area that has remarkable scenery or a resource that is indigenous to the area. The project site itself does not provide any visual resources that would be considered a scenic vista because it primarily consists of agricultural lands that are relatively common in other areas of the city and are not unique to the surrounding visual setting. Further, because on-site agricultural production activities have altered the natural landscape, the project site does not provide views of the indigenous natural landscape. Although the current land uses provide views of an agricultural landscape that is representative of the project region, the project site does not contain resources that are exemplary of the agricultural history of the area (i.e., historic structures or landmarks) (see Section 4.12, "Cultural Resources"). Views of the project site are not unique in the region.

The project site is generally flat and many views of the site are screened by surrounding residential and commercial development. Although some views of the distant Diablo Range are available from the project site, no areas that would qualify as a scenic vista are located near the project site. Therefore, there is little opportunity for project activities to obscure views of scenic vistas that may be located outside the project site. Because the project would not have a substantial adverse affect on a scenic vista, this would be a **less-than-significant** impact.

IMPACT 4.2-2 **Damage to Scenic Resources within a State Scenic Highway.** *No state scenic highways are located within the vicinity of the project site. Therefore, implementation of the project would not result in damage to scenic resources along a state scenic highway. This would be a* ***less-than-significant*** *impact.*

A scenic resource is generally a resource, landmark, or area that has been noted for its outstanding scenic qualities and is thereby protected because of those qualities. A scenic resource within a state scenic highway is a resource that is noted for its outstanding scenic qualities and is visible from a state-designated scenic highway. There are no scenic state-designated highways or eligible routes, or scenic roadways designated by the City of Manteca or San Joaquin County, in the immediate project area. The nearest state-designated scenic highway is a segment of Interstate 5 approximately 15 miles southwest of the project area; the designation is from the San Joaquin County line north to SR 205. Because of the large distance between this state-designated scenic highway segment and the project area, the project site is not visible from this scenic highway segment. Therefore, the project would have a **less-than-significant** impact on scenic resources adjacent to a state-designated highway.

IMPACT 4.2-3 **Degradation of Visual Character.** *Implementation of the project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses. This would be considered a* ***significant*** *impact.*

The 65-acre project site consists primarily of fallow agricultural land except for an active orchard located in the Phase 3 development area. Implementation of the project would result in conversion of this land use to commercial development and supporting land uses (e.g., parking lots). The project is proposed to be an aesthetically and architecturally pleasing development that would complement existing urban development in the project area (i.e., residential subdivision, commercial uses located across South Union Road). The project includes extensive design guidelines that identify the specific landscaping, lighting, and signage that would be implemented at the site consistent with the City's design policies of the general plan (i.e., policies CD-P-14, CD-P-35, CD-P-36). Specifically, the project includes landscaping throughout parking and building areas, would orient buildings to provide for pedestrian access within the center (policy CD-P-38), would provide pedestrian and bicycle connections to off-site areas (i.e., from South Union Road, Woodward Avenue, and Atherton Drive) (policy CD-P-37), and would meet safety requirements for parking (see Section 4.11, "Transportation and Circulation") (policy CD-P-44).

The area surrounding the project site is generally undergoing a transition from rural and agricultural open space uses to an urban environment. While over time the area would be fully developed with urban land uses, the project area is currently in a transitional state and provides representative views of typical agricultural and urban environments. As such, even with implementation of measures to enhance the aesthetic appeal of the development, the change from agricultural to urban uses can be perceived by some as a substantial alteration of the visual character of the project site.

The visual impacts from surrounding representative viewpoints are described below. The project site would be visible from nearby residences and motorists traveling along SR 120, the SR 120– South Union Road off-ramp, South Union Road, and Woodward Avenue.

Views from SR 120

From SR 120, existing views of the project site consist of a common agricultural viewshed found in many locations in San Joaquin County. With implementation of the project, the rural agricultural setting of the project site would change to a commercial development adjacent to existing single-family residential housing and commercial development under construction located to the east across South Union Road and large-lot residential and agriculture land (fallow and active) located to the south of the site. Motorists traveling in either direction on SR 120 would have open views of the project because of minimal existing vegetation on and around to the project site. However, landscaping proposed as part of the project along the northern boundary of the site would screen most foreground and middle ground views of the development. The project would plant numerous large-canopy and evergreen screen trees along all project boundaries. Specific types of trees would include tulip tree, London plane tree, and deodar cedar tree spaced at approximate 25-foot intervals, which when fully grown would create an urban forest environment typical of other commercial development in the project area. Initially, young trees would be short and tree branches and foliage would allow some views of project structures. However, once fully mature, the trees would block some views of project structures. Over time, background views of the development would be unobstructed from SR 120. The project includes several design, architectural, and development guidelines to preserve and maintain the general visual quality of the development and to ensure that the character of development would be consistent with viewer expectations for similar urban environments. It is anticipated that views of the project would be similar to views of established commercial settings found elsewhere in the project vicinity.

Views from the SR 120–South Union Road Off-Ramp, South Union Road, and Woodward Avenue

With implementation of the project, the rural agricultural setting of the project site would change to a commercial development. Views of the site from the SR 120– South Union Road off-ramp, South Union Road, and Woodward Avenue would be close range and would include sidewalks, parking lots, trees and landscaping, direct and indirect views of commercial buildings, and views of access roadways to the site. Similar to views from SR 120, the project would substantially change views of the local area through conversion of agricultural land uses to urban land uses. Further, views of the site from surrounding single-family residences would substantially change and in some locations (especially from adjacent residences to the west) the project would be a prominent feature in foreground views. Similar to the discussion above, implementation of design, architectural, development, and maintenance standards and guidelines to preserve and maintain the general visual quality of the development would ensure that the character of development would be consistent with viewer expectations for similar urban environments. However, because the project would result in substantial foreground changes in the visual environment for drivers along SR 120, local roadways, and surrounding residences, this would be a significant visual impact.

IMPACT 4.2-4 Impacts from Lighting. *The project would require lighting of parking lots, sidewalks, and buildings that could inadvertently cause light and glare for motorists on adjacent roadways and nearby residents. The proposed site lighting plan would create a new source of substantial light and glare that would adversely affect nighttime views in the area. Because calculated site lighting levels would exceed the IESNA lighting recommendations for parking lots for three criteria, and would exceed the recommended IDA maximum to average ratios for indirect glare, light and glare levels associated with operation of the proposed project would be a* ***significant*** *impact.*

Currently, no lighting exists on the project site. Existing nighttime lighting sources near the site consist of street lighting along South Union Road and Atherton Drive. In general, dominant nighttime lighting sources in the project area originate from SR 120, street lighting along South Union Road, and residential development located along the east side of South Union Road. Development of the project would require lighting of roadways, parking lots, buildings, and other facilities. A substantial increase in the amount of nighttime light and glare compared to existing conditions would result from implementation of the project, potentially obscuring views of stars, constellations, and other features of the night sky. In addition, nighttime lighting and/or the presence of reflective surfaces on buildings (e.g., reflective window glazing) may result in light and glare shining onto motorists on SR 120, the SR 120 South Union Road off-ramp, south Union Road, and Atherton Drive.

The project applicant prepared a lighting plan for the project site. The lighting plan consists of the site layout, landscaping plan, lighting fixture layout, and site photometric plan. Project site and adjacent area lighting levels, light trespass, and high-angle glare associated with the lighting plan were assessed (see Appendix B) and compared to lighting recommendations published by the IESNA, the CEC, and the IDA.

Lighting levels were calculated for the project site (utilizing site lighting plan information) and were found to not meet IESNA lighting recommendations for parking lots for three criteria (i.e., minimum horizontal illuminance at pavement, horizontal uniformity ratio, minimum vertical illuminance at 5 feet above pavement). For the three criteria, the project fails to meet the recommended level (see table 4.2-2). Because calculated site lighting levels are inconsistent with recommended values and could result in the substantial casting of light and glare to offsite areas and under illuminated areas on the project site, this would be considered a significant lighting impact.

Table 4.2-2
Recommended and Calculated Maintained Illuminance for Parking Lots

Criteria	Recommended Value	Calculated Value
IESNA Handbook		
Recommended Average Horizontal Illuminance at pavement	1.0 fc	1.73 fc
Minimum Horizontal Illuminance at pavement	0.2 fc	***0.1 fc***
Horizontal Uniformity Ratio, Maximum-to-Minimum	20:1	***63:1***
Minimum Vertical Illuminance at 5 feet above pavement	0.1 fc	***0.0 fc***
Title 24		
Lighting Power Density	0.15 W/sq. ft.	0.0425 W/sq. ft.

Italicized, bold text indicates calculations that do not meet recommended lighting levels.
fc = footcandle
W/sq. ft. = watts per square foot
Source: Auerbach Glasow French 2009a

To assess light trespass, lighting levels were calculated at the project site boundaries and entries. The amount of light trespass from the project site was found to not significant. Indirect glare was analyzed at wall surfaces where light fixtures would be located. Maximum to average ratios at the walls were found to be as high as 14.5:1, exceeding the IDA recommendations of 10 times the average lighting level. Both light trespass and indirect glare would be considered a significant impact.

In summary, the proposed project lighting plan would create a new source of substantial light and glare that would adversely affect nighttime views in the area. Because calculated site lighting levels were found to exceed the IESNA lighting recommendations for parking lots under three criteria, to result in significant light trespass, and to exceed the recommended IDA maximum to average ratios for indirect glare (Auerbach Glasow French 2009b), site lighting and glare levels associated with operation of the proposed project would be a **significant** impact.

4.2.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

4.2-1: Impacts on a Scenic Vista.

4.2-2: Damage to Scenic Resources within a State Scenic Highway.

Mitigation is recommended for the following potentially significant impacts to the agricultural vista, as required under CEQA.

Mitigation Measure 4.2-3: Degradation of Visual Character.

Because the project would comply with the City's design and lighting standards, no other feasible mitigation is available to reduce the project's visual impacts to a less-than-significant level.

Mitigation Measure 4.2-4: Visual Resources—Impacts from Lighting.

The project applicant shall meet or exceed all lighting recommendations (e.g., fixture types, location, and orientation; pole heights; fixture optics; tree removal), as shown in Drawing LSK-1 of the lighting study

(Appendix B), into the project design. As a result, impacts associated with site lighting and glare would be reduced to a less-than-significant level.

4.2.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The project's scenic resources impacts would be less-than-significant and no mitigation is required. Because of the scale and location of the proposed project, no feasible mitigation is available to address visual resource impacts associated with the conversion of agricultural land to commercial development. Although design, architectural, development, and maintenance standards are included in the project to ensure that commercial development at the project site remains within the City's aesthetic guidelines, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to commercial development.

Conversion of the agricultural viewshed at the project site to commercial development is identified as a significant impact, and no feasible mitigation is available to reduce this impact to a less-than-significant level. Therefore, the project's impact on the local visual character of the project site (Impact 4.2-3) would be a **significant and unavoidable** impact.

By implementing recommendations of the lighting study (e.g., using different light fixture types with different fixture heads, mounting light fixtures on different pole heights, relocating light fixtures, reorienting and using differing light fixture optics, removing trees located close to pole locations, reducing the total number of light fixtures), implementation of Mitigation Measure 4.2-4 would adjust lighting and glare levels to levels consistent with IESNA standards and recommendations for light trespass and glare. As a result, impacts associated with site lighting and glare would be reduced to a **less-than-significant** level. Implementation of this mitigation measure would also make the project consistent with the City's general plan policies related to lighting (including policies CD-P-44, CD-P-45, and CD-P-47).

4.3 AIR QUALITY

This section includes a description of existing air quality, a summary of applicable regulations, and analyses of potential short-term, and long-term air quality impacts of the proposed project with respect to criteria air pollutants, toxic air contaminants (TACs), and odors. The section also provides a description of the existing greenhouse gas (GHG) emissions in California, a summary of the applicable GHG and climate change regulations, and an analysis of the potential short-term and long-term GHG impacts of the proposed project. The methods of analysis for criteria air pollutant (i.e., short-term construction, long-term regional [operational], and long-term local mobile source), TAC, and odor emissions are consistent with the recommendations of the San Joaquin Valley Air Pollution Control District (SJVAPCD). As discussed above, GHG emissions associated with the short-term construction and long-term operation of the proposed project are quantified as part of this analysis. However, due to the lack of guidance and quantitative emissions thresholds, climate change impacts are discussed qualitatively as a cumulative impact. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

4.3.1 ENVIRONMENTAL SETTING

The project site is located in unincorporated San Joaquin County, which is within the San Joaquin Valley Air Basin (SJVAB). The SJVAB also includes all of Fresno, Kings, Madera, Merced, Stanislaus, and Tulare Counties, and the valley portion of Kern County. Ambient concentrations of air pollutant emissions are determined by the amount of emissions released by pollutant sources and the atmosphere's ability to transport and dilute such emissions. Natural factors which affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The SJVAB, which occupies the southern half of the Central Valley, is approximately 250 miles long and, on average, 35 miles wide. The SJVAB is a well-defined climatic region with distinct topographic features on three sides. The Coast Range, which has an average elevation of 3,000 feet, is located on the western border of the SJVAB. The San Emigdio Mountains, which are part of the Coast Range, and the Tehachapi Mountains, which are part of the Sierra Nevada, are both located on the south side of the SJVAB. The Sierra Nevada forms the eastern border of the SJVAB. The northernmost portion of the SJVAB is San Joaquin County. There is no topographic feature delineating the northern edge of the basin. The SJVAB can be considered a "bowl" open only to the north.

The SJVAB is basically flat with a downward gradient in terrain to the northwest. Air flows into the SJVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta (Delta) from the San Francisco Bay Area. The mountains surrounding the SJVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. As a result, the SJVAB is highly susceptible to pollutant accumulation over time.

The inland Mediterranean climate type of the SJVAB is characterized by hot, dry summers and cool, rainy winters. The climate is a result of the topography and the strength and location of a semipermanent, subtropical high-pressure cell. During summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwellings of cold ocean water from below to the surface, because of the northwesterly flow, produce a band of cold water off the California coast. Daily summer high temperatures often exceed 100 degrees Fahrenheit (ºF), averaging in the low 90s in the north and high 90s in the south. In the entire SJVAB, daily summer high temperatures average 95ºF. Over the last 30 years, temperatures in the SJVAB averaged 90ºF or higher for 106 days a year, and 100ºF or higher for 40 days a year. The daily summer temperature variation can be as high as 30ºF (SJVAPCD 2002). In

winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and storms. Average high temperatures in the winter are in the 50s, but lows in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low temperature in the winter is 45ºF (SJVAPCD 2002).

A majority of the precipitation in the SJVAB occurs as rainfall during winter storms. The rare occurrence of precipitation during the summer is in the form of convective rain showers. The amount of precipitation in the SJVAB decreases from north to south primarily because the Pacific storm track often passes through the northern portion of the SJVAB, while the southern portion remains protected by the Pacific high-pressure cell. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. Average annual rainfall for the entire SJVAB is approximately 9.25 inches on the valley floor (SJVAPCD 2002).

The winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. Precipitation and fog tend to reduce or limit some pollutant concentrations. For instance, clouds and fog block sunlight, which is required to fuel photochemical reactions that form ozone. Because carbon monoxide (CO) is partially water-soluble, precipitation and fog also tend to reduce concentrations in the atmosphere. In addition, respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}) can be washed from the atmosphere through wet deposition processes (e.g., rain). However, between winter storms, high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions resulting in the concentration of air pollutants (e.g., CO and PM_{10}).

Summer is considered the ozone season in the SJVAB. This season is characterized by poor air movement in the mornings and by longer daylight hours, which provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NO_X), which result in ozone formation. During the summer, wind speed and direction data indicate that summer wind usually originates at the north end of the San Joaquin Valley and flows in a south-southeasterly direction through Tehachapi Pass and into the Southeast Desert Air Basin (SJVAPCD 2002).

EXISTING SENSITIVE RECEPTORS

Commonly identified sensitive population groups with regard to air pollutants and odors are children, the elderly, and acutely ill and chronically ill persons. Commonly identified sensitive land uses are residences, schools, playgrounds, childcare centers, retirement homes or convalescent homes, hospitals, and clinics.

Sensitive land uses in the project area consist primarily of rural single-family residential dwellings. The project site is located in the vicinity of 3 elementary schools and 1 high school. The Brock Elliot Elementary School is located approximately one quarter mile northwest of the project site, the Veritas Elementary School is about 1,000 feet directly east of the project site, and the Sequoia Elementary School is approximately 0.9 mile northeast of the project site. The Sierra High School is located approximately 0.8 mile northwest of the project site.

EXISTING AIR QUALITY – CRITERIA AIR POLLUTANTS

Concentrations of the following air pollutants: ozone, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10}, and fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead are used as indicators of ambient air quality conditions. Because these are the most prevalent air pollutants known to be deleterious to human health, and because there is extensive documentation available on health-effects criteria for these pollutants, they are commonly referred to as "criteria air pollutants."

A brief description of each criteria air pollutant, including source types, health effects, and future trends, is provided below along with the most current attainment area designations and monitoring data for the project area and vicinity.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds (VOCs) that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels. A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_X levels are present to sustain the ozone formation process. Once the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional scale, ozone is a regional pollutant.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 part per million (ppm) for 1–2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in permeability of respiratory epithelia; such increased permeability leads to an increased response of the respiratory system to challenges, and a decrease in the immune system's ability to defend against infection (Godish 2004).

Ozone precursor emissions of ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. The ozone problem in the SJVAB ranks among the most severe in the state. Exceedance days have declined at a faster rate than peak levels. From 1987 to 2007, peak levels declined by 10% while the number of California and national 8-hour exceedance days declined by 38% and 35%, respectively. Most of this progress has occurred since 2003; however, the number of exceedance days in 2006 and 2007 were among the lowest in this 18 year period (ARB 2008a).

Carbon Monoxide

CO, is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56% of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22% of all CO emissions nationwide. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95% of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are sources of CO indoors. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air (EPA 2008a).

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2008a).

The highest concentrations are generally associated with cold, stagnant weather conditions that occur during the winter. In contrast to problems caused by ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2008a). The combined emissions of NO and NO_2 are referred to as NO_X and reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with ozone, the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions (EPA 2008a).

Sulfur Dioxide

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2008a). Fine particulate matter ($PM_{2.5}$) is a subgroup of PM_{10}, consisting of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less (ARB 2008a).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons, and other toxic substances adsorbed onto fine particulate matter (referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis,

and premature death (EPA 2008a). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health.

Direct emissions of PM_{10} remained relatively unchanged between 1975 and 2005 and are projected to remain unchanged through 2020. PM_{10} emissions in the SJVAB are dominated by emissions from areawide sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, waste burning, and residential fuel combustion. Available PM_{10} data show some variation during the trend period, but overall, there has been a downward trend. Over this period from 1990 to 2006, the three-year average of the annual averages shows a decrease of 32%. The calculated number of days exceeding the California and national 24-hour standards also shows a decrease. There were 292 calculated California standard exceedance days and 31 calculated national standard exceedance days during 1990. During 2006, there were 167 calculated California standard exceedance days and 13 national standard exceedance days (ARB 2008a).

Annual average $PM_{2.5}$ concentrations in the SJVAB show a definite downward trend from 1999 through 2006. The California annual average concentrations remained relatively constant from 1999 through 2006, with a slight drop in 2003. The differences in trends are due to differences in California and national monitoring methods. The 98th percentile of 24-hour $PM_{2.5}$ concentrations also declined during this period. Similar to PM_{10}, year-to-year changes in meteorology can mask the impacts of emission control programs (ARB 2008a).

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. Environmental Protection Agency (EPA) set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2008a).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (EPA 2008a).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story with regard to air quality management. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent California Air Resources Board (ARB) regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the ARB identified lead as a TAC.

Monitoring Station Data

SJVAPCD and ARB maintain several monitoring stations through the SJVAB. The Stockton—Hazelton air quality monitoring station is the closest to the project site (approximate 12 mile northwest) with sufficient data to meet EPA and/or ARB criteria for quality assurance. In general, the ambient air quality measurements from this

station are representative of the air quality in the vicinity of the proposed project site. It should be noted that SO_2 is not monitored at any monitoring station in San Joaquin County.

Table 4.3-1 summarizes the air quality data from 2005 to 2007 for the monitoring station located in the vicinity of the project site. As shown below, the state and national 8-hour ozone standards were exceeded multiple times during the past 3 years. The CO and NO_2 state standards have not been exceeded during the past 3 years. The national 24-hour standard with respect to PM_{10} and $PM_{2.5}$ were not exceeded in any of the past 3 years; however, the state 24-hour PM_{10} was exceeded several times in each of the past 3 years.

Attainment Area Designations

Both ARB and EPA use the type of monitoring data shown in Table 4.3-1 to designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. The "unclassified" designation is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called "nonattainment-transitional." This designation is given to nonattainment areas that are progressing and nearing attainment.

The determination of whether a region's air quality is healthful or unhealthful is made by comparing contaminant levels in ambient air samples to national and state standards. Health-based air quality standards have been established by ARB, at the state level, and EPA, at the national level for the following criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. California has also established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. The state and national ambient air quality standards for each of the monitored pollutants as well as the most current attainment designations for the San Joaquin County portion of the SJVAB are summarized in Table 4.3-2.

National Attainment Status

The National Ambient Air Quality Standards (NAAQS) (other than ozone, PM_{10}, $PM_{2.5}$ and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for ozone, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The SJVAB is currently designated as a serious nonattainment area with respect to the national standard for ozone and PM_{10}. The SJVAB is also nonattainment for the national $PM_{2.5}$ standard and attainment or unclassifiable for all other pollutants. The attainment status of the SJVAB with respect to the NAAQS is shown below in Table 4.3-2.

State Attainment Status

Air quality of a region is considered to be in attainment of the California Ambient Air Quality Standards (CAAQS) standards if the measured ambient air pollutant levels for ozone, CO, SO_2 (1- and 24-hour averaging time), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three year period. The SJVAB is currently designated as a nonattainment area with respect to the state standards for ozone, PM_{10}, and $PM_{2.5}$ and is designated as attainment or unclassified for all other pollutants. The attainment status of the SJVAB with respect to the state standards is shown below in Table 4.3-2.

Table 4.3-1
Summary of Annual Ambient Air Quality Data[1]

	2005	2006	2007
OZONE			
Maximum concentration (1-hour/8-hour, ppm)	0.099/0.086	0.109/0.092	0.093/0.082
Number of days state standard exceeded (1-hour/8-hour)	3/10	21	0/4
Number of days national standard exceeded (1-hour/8-hour) [2]	0/1	0/3	0/0
CARBON MONOXIDE (CO)			
Maximum concentration (1-hour/8-hour, ppm)	4.3/2.86	4.2.25	3.2.31
Number of days state standard exceeded (8-hour)	0	0	0
Number of days national standard exceeded (1-hour/8-hour)	0/0	0/0	0/0
NITROGEN DIOXIDE (NO_2)			
Maximum concentration (1-hour, ppm)	0.087	0.072	0.070
Number of days state standard exceeded	0	0	0
Annual average (ppm)	0.017	0.018	0.016
FINE PARTICULATE MATTER ($PM_{2.5}$)			
Maximum concentration ($\mu g/m^3$) (National/California[3])	63.0/70.0	47.0/53.3	52.0/66.8
Number of days national standard exceeded (measured/estimated [4]) [5]	0/0.0	0/0.0	0/0.0
Annual average ($\mu g/m^3$) (National/California)	12.12.5	13.1/13.5	12.9/13.5
RESPIRABLE PARTICULATE MATTER (PM_{10})			
Maximum concentration ($\mu g/m^3$) (National/California [3])	79.0/84.0	82.0/85.0	71.0/75.0
Number of days state standard exceeded (measured/estimated [4])	8/46.5	11/62.9	23.5
Number of days national standard exceeded (measured/estimated [4])	0/0.0	0/0.0	0/0.0

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million;

[1] Measurements were recorded at the Stockton-Hazelton monitoring station.

[2] The 8-hour national ozone standard was revised to 0.075 ppm in March 2008. Statistics shown are based on the previous 0.08 ppm standard.

[3] State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on local conditions while national statistics are based on standard conditions. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[4] Measured days are those days that an actual measurement was greater than the level of the California daily standard or the national daily standard. Measurements are typically collected every 6 days. Estimated days are the mathematically derived number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

[5] The national $PM_{2.5}$ 24-hour standard was revised from 65 $\mu g/m^3$ to 35$\mu g/m^3$ in 2006. Statistics shown are based on the 65 $\mu g/m^3$ standard.

Sources: ARB 2008b;EPA 2008b

Table 4.3-2
Summary of Ambient Air Quality Standards and Attainment Designations

Pollutant	Averaging Time	California		National Standards[1]		
		Standards[2,3]	Attainment Status (San Joaquin Valley Air Basin)[4]	Primary[3,5]	Secondary[3,6]	Attainment Status (San Joaquin Valley Air Basin)[7]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	N	–	–	–[8]
	8-hour	0.070 ppm (137 µg/m^3)	N	0.075 ppm (147 µg/m^3)	Same as Primary Standard	N (Serious)[9]
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A/U	35 ppm (40 mg/m^3)	–	A/U
	8-hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 µg/m^3)	–	0.053 ppm (100 µg/m^3)	Same as Primary Standard	A/U
	1-hour	0.18 ppm (338 µg/m^3)	A	–		–
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	–	0.030 ppm (80 µg/m^3)	–	A/U
	24-hour	0.04 ppm (105 µg/m^3)	A	0.14 ppm (365 µg/m^3)	–	
	3-hour	–	–	–	0.5 ppm (1300 µg/m^3)	
	1-hour	0.25 ppm (655 µg/m^3)	A	–	–	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N	-	Same as Primary Standard	A[10]
	24-hour	50 µg/m^3		150 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	N	15 µg/m^3	Same as Primary Standard	N[11]
	24-hour	–	–	35 µg/m^3		
Lead[12]	30-day Average	1.5 µg/m^3	A	–	–	–
	Calendar Quarter	–	–	1.5 µg/m^3	Same as Primary Standard	–[13]
Sulfates	24-hour	25 µg/m^3	A	No National Standards		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	U			
Vinyl Chloride[12]	24-hour	0.01 ppm (26 µg/m^3)	A			

Table 4.3-2
Summary of Ambient Air Quality Standards and Attainment Designations

Pollutant	Averaging Time	California		National Standards [1]		
		Standards [2,3]	Attainment Status (San Joaquin Valley Air Basin) [4]	Primary [3,5]	Secondary [3,6]	Attainment Status (San Joaquin Valley Air Basin) [7]
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U	No National Standards		

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million

[1] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

[2] California standards for ozone, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[3] Concentration expressed first in units in which it was issued (i.e., parts per million [ppm] or micrograms per cubic meter [$\mu g/m^3$]). Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Unclassified (U): The data are incomplete and do not support a designation of attainment or nonattainment.
Attainment (A): The state standard for that pollutant was not violated at any site in the area during a 3-year period.
Nonattainment (N): There was at least one violation of a state standard for that pollutant in the area.
Nonattainment/Transitional (NT) (a subcategory of the nonattainment designation): The area is close to attaining the standard for that pollutant.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Nonattainment (N): Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Attainment (A): Any area that meets the national primary or secondary ambient air quality standard for the pollutant.
Unclassifiable (U): Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

[8] Effective June 15, 2005, EPA revoked 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.

[9] On April 30, 2007 the Governing Board of the SJVAPCD voted to request EPA to reclassify the SJVAB as extreme nonattainment for the national 8-hour ozone standards. ARB, on June 14, 2007, approved this request. This request must be forwarded to EPA by ARB and would become effective upon EPA final rulemaking after a notice and comment process; it is not yet in effect.

[10] On September 25, 2008, EPA redesignated the SJVAB to attainment for the PM_{10} NAAQS.

[11] The SJVAB is designated nonattainment for the 1997 national $PM_{2.5}$ standards. EPA released final designations for the 2006 $PM_{2.5}$ standards in December 2008 (effective 2009), designating the SJVAB as nonattainment for the 2006 $PM_{2.5}$ standards.

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

[13] No designation or classification.

Sources: ARB 2008c; EPA 2008c; SJVAPCD 2008a

Existing Emissions

San Joaquin County

Table 4.3-3 summarizes emissions of criteria air pollutants within San Joaquin County for various source categories. According to San Joaquin County's emissions inventory, mobile sources are the largest contributor to the estimated annual average air pollutant levels of ROG, CO, and NO_X, accounting for approximately 55%, 89%, and 83% respectively, of the total emissions. Areawide sources account for approximately 79% and 53% of the County's PM_{10} and $PM_{2.5}$ emissions, respectively.

Table 4.3-3
Summary of 2006 Estimated Emissions Inventory for Criteria Air Pollutants and Precursors (San Joaquin County)

Source Type/Category	Estimated Annual Average Emissions (Tons per Day)					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Stationary Sources						
Fuel Combustion	0.37	4.98	14.43	2.37	0.68	0.61
Waste Disposal	0.09	0.00	0.00	0.00	0.02	0.01
Cleaning and Surface Coating	2.18	0.00	-	-	0.05	0.05
Petroleum Production and Marketing	1.30	0.00	0.00	0.00	-	-
Industrial Processes	2.95	0.63	2.53	2.03	1.90	1.09
Subtotal (Stationary Sources)	6.90	5.61	16.97	4.40	2.64	1.75
Areawide Sources						
Solvent Evaporation	7.72	-	-	-	-	-
Miscellaneous Processes	7.18	21.95	1.77	0.10	26.00	6.29
Subtotal (Areawide Sources)	14.90	21.95	1.77	0.10	26.00	6.29
Mobile Sources						
On-Road Motor Vehicles	14.62	138.82	47.04	0.38	2.14	1.70
Other Mobile Sources	13.15	79.93	42.09	0.76	2.23	2.00
Subtotal (Mobile Sources)	27.77	218.75	89.13	1.14	4.36	3.70
Total for Sacramento County	**49.56**	**246.30**	**107.87**	**5.64**	**33.00**	**11.75**

Notes:
ROG = reactive organic gases; CO = carbon monoxide; NO_X = oxides of nitrogen; SO_X = oxides of sulfur; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter
Totals in table may not appear to add exactly due to rounding the calculations.
Source: ARB 2008d

Project Site

The project site is currently undeveloped and does not generate any operational criteria air pollutant or precursor emissions.

EXISTING AIR QUALITY – TOXIC AIR CONTAMINANTS

Concentrations of TACs, or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient-air-quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the *California Almanac of Emissions and Air Quality* (ARB 2008a), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs. Based on receptor modeling techniques, ARB estimated the diesel PM health risk in the SJVAB in 2000 to be 390 excess cancer cases per million people. Since 1990, the health risk of diesel PM in the SJVAB has been reduced by 50%. Overall, levels of most TACs have gone down since 1990 except for *para*-dichlorobenzene and formaldehyde (ARB 2008a).

A records search was conducted to identify major stationary sources of TACs near the project site. Based on a review of information on file with the ARB and EPA, no major stationary sources of TACs were found within of the vicinity of the project site (ARB 2008e, EPA 2008d). Mobile-source emissions associated with heavy-duty diesel vehicles, including those traveling on area roadways and railroad engines operating along nearby railroad corridors, are considered sources of TACs within the project region.

EXISTING AIR QUALITY – ODORS

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

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

The project site is adjacent to single-family residential units to the north and west, which do not generate substantial odors. Industries and/or facilities that are likely to emit objectionable odors include wastewater treatment plants, landfills, composting facilities, petroleum refineries, and chemical and fiberglass manufacturers among others. Potential sources of odors in the project vicinity include the Lovelace Road Transfer Station, located approximately 4.5 miles north of the project site and agricultural activities on adjacent parcels. The Lovelace Road Transfer Station is located farther than 1 mile from the project site. The only potential odor source within 2 miles of the proposed project is the City of Manteca Wastewater Quality Control Facility. However, in discussion with the SJVAPCD, no confirmed or unconfirmed odor complaints have been reported for the Manteca Wastewater Control Facility in the last 3 years (Morris, pers. com., 2008).

EXISTING AIR QUALITY – GREENHOUSE GASES EMISSIONS

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. The absorbed radiation is then emitted from the earth, not as high-frequency solar radiation, but lower frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. The earth has a much lower temperature than the sun; therefore, the earth emits lower frequency (longer wavelength) radiation. Most solar radiation passes through GHGs; however, infrared radiation is selectively absorbed by GHGs. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

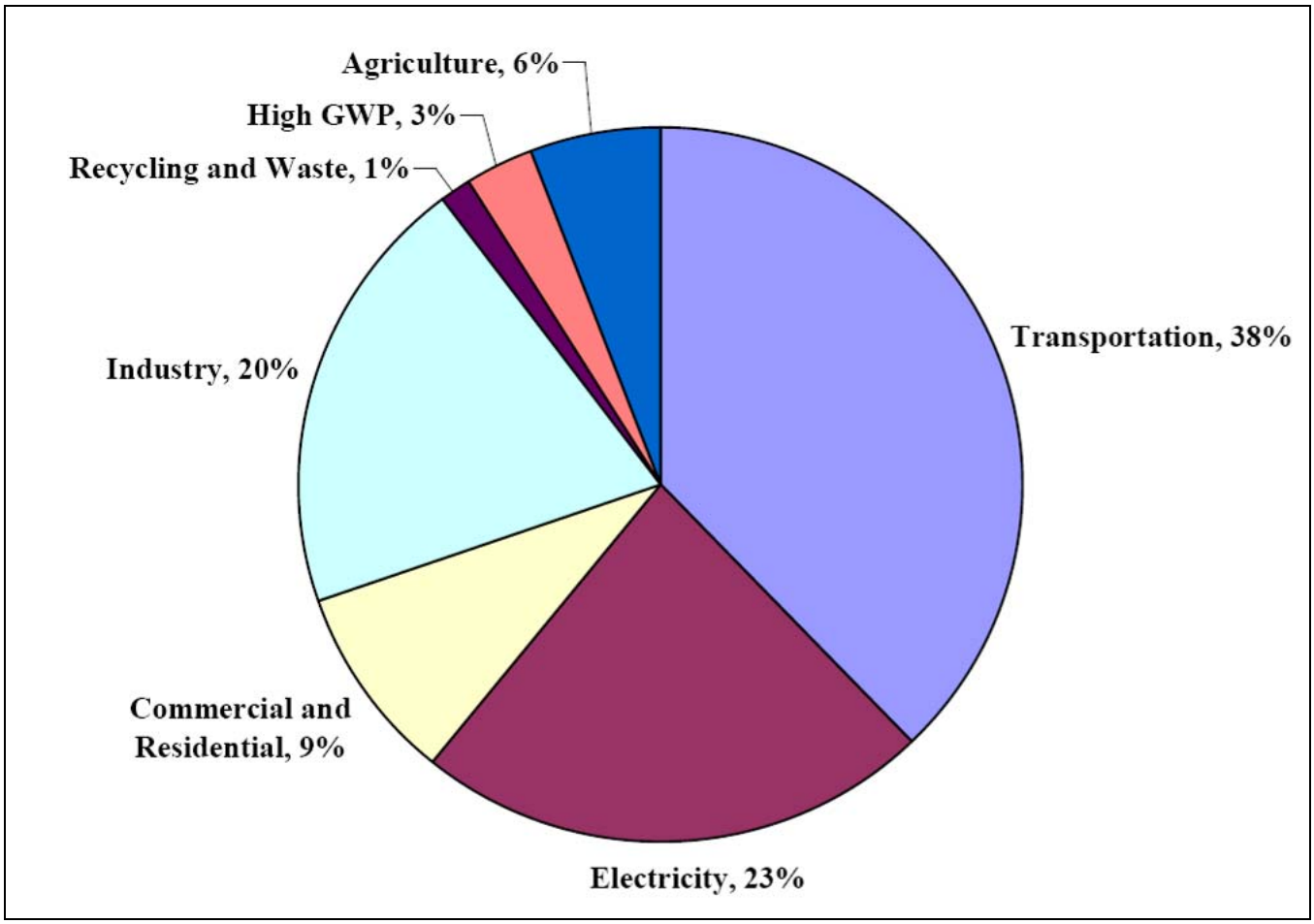
Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is extremely unlikely that global climate change over the past 50 years can be explained without the contribution from human activities (IPCC 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is currently emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46% of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known;

suffice it to say that the quantity is enormous, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (ARB 2008f). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2008f). Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) largely associated with agricultural practices and landfills. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through photosynthesis and dissolution, respectively, two of the most common processes of CO_2 sequestration.



Source: ARB 2008f

California's Greenhouse Gas Emissions by Economic Sector (2002–2004 Average) Exhibit 4.3-1

California is the 12th to 16th largest emitter of CO_2 in the world (CEC 2006a). California produced 480 million gross metric tons of CO_2 equivalent (CO_2e) in 2004 (ARB 2008f). CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent in large part on the lifetime, or persistence, of the gas molecule in the atmosphere and its ability to absorb and retain heat (i.e., infrared radiation) in the atmosphere. For example, as described in Appendix C, "Calculation References," of the *General Reporting Protocol of the California Climate Action Registry* (CCAR) (CCAR 2008),

1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 23 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. Expressing emissions in CO_2e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions during 2002–2004, accounting for 38% of total GHG emissions in the state (ARB 2008f). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (23%) and the industrial sector (20%) (ARB 2008f).

Climate change could affect environmental conditions in California through a variety of mechanisms. One is sea level rise. Sea level rose worldwide approximately 7 inches during the last century (CEC 2006b), and it is predicted to rise an additional 7–22 inches by 2100, depending on the future levels of GHG emissions (IPCC 2007). However, the Governor-appointed Delta Vision Blue Ribbon Task Force has recommended the State plan for a scenario of 16 inches of sea level rise by 2050, and 55 inches by 2100. Resultant effects of sea level rise could include increased coastal flooding, saltwater intrusion (especially a concern in the low-lying Delta, where pumps delivering potable water could be threatened), and disruption of wetlands (CEC 2006b). Some low-lying populated areas throughout the Central Valley and Delta inundated by sea level rise could experience population displacement and economic disruption.

As the existing climate throughout California changes over time, the ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct or be extirpated from the state if suitable conditions are no longer available. Additional concerns associated with climate change are a reduction in the snowpack, leading to less overall water storage in the mountains, the largest "reservoir" in the state, and increased risk of wildfire caused by changes in rainfall patterns and plant communities.

4.3.2 REGULATORY SETTING

Air quality within the SJVAB is addressed through the efforts of various federal, state, regional and local government agencies. These agencies work jointly as well as individually to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the basin are discussed below along with their individual responsibilities.

CRITERIA AIR POLLUTANTS

Federal Regulations

EPA is responsible for enforcing the federal Clean Air Act (CAA) and the NAAQS that it establishes. These standards identify levels of air quality for seven criteria pollutants: ozone, CO_2, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The prescribed levels are considered to be the maximum levels of ambient (background) air pollutants determined safe (with an adequate margin of safety) to protect the public health and welfare.

The CAA 1990 Amendments were enacted to better protect the public's health and create more efficient methods of lowering pollutant emissions. The major areas of improvement from the amendments include air basin designations, automobile/heavy-duty engine emissions, and toxic air pollutants. The EPA designates air basins as being in "attainment" or "nonattainment" levels for each of the seven criteria pollutants. The attainment status of the SJVAB is shown in Table 4.3-2. Nonattainment air basins are ranked (marginal, moderate, serious, severe, or extreme) according to the degree of nonattainment. The air basin is then required to submit a State Implementation Plan (SIP) that describes how the state will achieve the federal standards by specified dates. The extent of a given SIP depends on the severity of the air quality within the state or specific air basin. Failure to

submit an approvable SIP or to implement the plan within the mandated time frame may cause sanctions to be applied to transportation funding and stationary air pollution sources in the air basin.

State Regulations

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish the CAAQS (Table 4.3-2). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing local air district compliance with California and federal laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

ARB and local air pollution control districts are currently developing plans for meeting new national air quality standards for ozone and $PM_{2.5}$. California's adopted 2007 State Strategy was submitted to EPA as a revision to the SIP in November 2007 (ARB 2008g).

Local Regulations

San Joaquin Valley Air Pollution Control District

SJVAPCD seeks to improve air quality conditions in San Joaquin County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SJVAPCD includes preparing plans and programs for the attainment of ambient air quality standards, adopting and enforcing rules and regulations, and issuing permits for stationary sources. SJVAPCD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the CAA, CAAA, and CCAA.

Guide for Assessing and Mitigating Air Quality Impacts

In January 2002, SJVAPCD released a revision to the previously adopted guidelines document. This revised *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (SJVAPCD 2002) is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The guide contains the following applicable components:

- criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- methods available to mitigate air quality impacts; and
- information for use in air quality assessments that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

Air Quality Plans

SJVAPCD prepares and submits air quality attainment plans (AQAPs) to ARB in compliance with the requirements set forth in the CCAA. The CCAA also requires a triennial assessment of the extent of air quality improvements and emissions reductions achieved through the use of control measures. As part of the assessment, the AQAPs must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. Due to the nonattainment status of the area, SJVAPCD is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. These milestone reports include compliance demonstrations to show that the requirements have been met for the nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO_X, and PM_{10} emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary-, mobile-, and indirect-source control measures. A summary of the SJVAPCD's current air quality plans is provided below.

2004 Extreme Ozone Attainment Demonstration Plan

The 2004 Extreme Ozone Attainment Demonstration Plan (OADP) was developed by the SJVAPCD to meet attainment for the national 1-hour ozone standard by November 15, 2010. An OADP is required to evaluate baseline and future emissions inventories while presenting control measures that will help reduce ozone precursors. The plan should include results from photochemical modeling that demonstrate that the region will meet attainment by the proposed date. The 2004 Extreme OADP includes emission reduction measures sufficient to meet the attainment date of November 2010, and also the rate-of-progress milestone in 2008. Although the national 1-hour ozone standard was revoked 2005, control measures contained in the 2004 Extreme OADP would also help the region achieve the federal 8-hour ozone standard. The 2004 Extreme OADP was adopted by SJVAPCD and ARB in October 2004 and is currently in review by EPA.

2007 Ozone Plan

The 2007 Ozone Plan was prepared by SJVAPCD to achieve expeditious attainment of the national 8-hour ozone standard. The plan contains an "exhaustive" list of regulatory and incentive-based measures to reduce emissions of ozone precursors and particulate matter within the region. The proposed local measures to achieve attainment with the 8-hour ozone standard are anticipated to be adopted before 2012. The plan notes that a 75 percent reduction in NO_X from 2005 levels (i.e., 624 tons per day) is necessary to achieve the new ozone standard. Due to mobile sources being a dominate source of ozone precursors in the region, strong participation and cooperation between local, state, and federal agencies is necessary to achieve the goals of the 2007 Ozone Plan. Based on future technology and full implementation of the proposed control measures, the plan estimates that 90% of the SJVAB will be in attainment by 2020. The 2007 Ozone Plan was adopted by SJVAPCD in April 2007 and approved by ARB in June 2007.

8-Hour Ozone Reasonably Available Control Technology

EPA required that all areas classified as moderate or higher under the new 8-hour ozone standard must demonstrate that their current rules meet 8-hour ozone reasonable available control technology (RACT). The RACT demonstration plan would be a revision to the SIP. SJVAPCD fulfilled this requirement with the 8-Hour Ozone RACT SIP Analysis. The SJVAPCD Governing Board adopted the 8-Hour Ozone RACT SIP Analysis in August 2006.

2004 Revision to the California SIP for Carbon Monoxide

The 2004 Revision the California SIP for Carbon Monoxide (Revision) documents the drop in CO levels since the 1998 CO Maintenance Plan. CO levels within the SJVAB dropped to levels 30 to 90% below the state 8-hour CO standard. The Revision extended the 1996 CO Maintenance Plan to 2018, incorporated significant emissions

inventory improvements due to models such as EMFAC2002, and revised on-road vehicle emissions budgets for transportation conformity based on the new inventories. The Revision was adopted by ARB on July 22, 2004.

2007 PM_{10} Maintenance Plan and Request for Redesignation

Although the EPA acknowledged that SJVAPCD had attained the PM_{10} NAAQS in 2006, SJVAPCD still had not fulfilled all the requirements of the CAA to achieve attainment status. The 2007 PM_{10} Maintenance Plan and Request for Redesignation fulfills those outstanding requirements and requests a redesignation for PM_{10}. The Plan addresses the CAA requirements that improvements to air quality and control measures used to achieve reductions must be permanent, and that a maintenance plan as well as a contingency plan must be approved by EPA. Although the national annual PM_{10} was revoked, the 2007 PM_{10} Maintenance Plan applied to both annual and 24-hour standards. ARB approved the Maintenance Plan in October 2007. However, EPA has 18 months to act on the maintenance plan and request for redesignation. SJVAPCD anticipates that a formal redesignation will occur sometime in 2009.

2008 $PM_{2.5}$ Plan

SJVAPCD developed the 2008 $PM_{2.5}$ Plan to achieve all of the $PM_{2.5}$ standards as soon as possible. The 2008 $PM_{2.5}$ Plan would benefit from existing emissions reduction measures and programs in place due to current ozone and PM_{10} plans. Modeling conducted as part of this plan determined that the SJVAB could achieve the federal annual $PM_{2.5}$ standard by 2014. Reductions for the $PM_{2.5}$ Plan would be achieved through strict regulatory and incentive-based measures that reduce directly emitted $PM_{2.5}$ and precursor emissions. The plan also cites reductions in NO_X would be the main pollutant for reducing $PM_{2.5}$, but reductions in directly emitted $PM_{2.5}$ and SO_X are also necessary to achieve attainment. The SJVAPCD Governing Board adopted the 2008 $PM_{2.5}$ Plan in April 2008. The Plan has been submitted to ARB for review.

Natural Events Action Plan for High Wind Events in San Joaquin Valley

In 2004, EPA approved a high wind data flag for PM_{10} in Corcoran. The Natural Events Action Plan (NEAP) was developed by the SJVAPCD as result of the high wind data flag. NEAPs are intended to protect public health during exceedances of the PM_{10} standard due to natural events. The NEAP for San Joaquin Valley was adopted by the SJVAPCD Governing Board in February 2006 and has been submitted to ARB.

SJVAPCD Rules and Regulations

SJVAPCD adopts rules and regulations to limit the generation of emissions from a range of sources and activities. All projects are subject to SJVAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the construction and operation of the proposed project may include, but are not limited to:

- Regulation II, Rule 2201: New and Modified Stationary Source Review
- Regulation II, Rule 2280: Portable Equipment Registration
- Regulation III, Rule 3135: Dust Control Plan Fee
- Regulation IV, Rule 4101: Visible Emissions
- Regulation IV, Rule 4102: Nuisance
- Regulation IV, Rule 4601: Architectural Coatings
- Regulation IV, Rule 4641: Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations
- Regulation IV, Rule 4702: Internal Combustion Engines—Phase 2
- Regulation VIII: Fugitive PM_{10} Prohibitions, which includes the following rules:
  - Rule 8011—General Requirements
  - Rule 8021—Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities
  - Rule 8031—Bulk Materials (handling and storage)
  - Rule 8041—Carryout and Trackout (of dirt and other materials onto paved public roads)
  - Rule 8051—Open Areas

- Rule 8061—Paved and Unpaved Roads (construction and use)
- Rule 8071—Unpaved Vehicle/Equipment Traffic Areas
- Rule 9110—General Conformity
- Rule 9510—Indirect Source Review (ISR)

Rules 8011–8081 are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, and landfill operations. Compliance with Regulation VIII is mandatory, and compliance by the project applicant is assumed in this analysis. If a nonresidential project is 5.0 or more acres in area, a Dust Control Plan must be submitted as specified in Section 6.3.1.of Rule 8021. Therefore, the applicant is required to submit a Dust Control Plan. Construction activities shall not commence until SJVAPCD has approved the Dust Control Plan.

Rule 9510 was adopted to reduce the impacts of growth in emissions from all new development in the SJVAB. The purposes of Rule 9510 are to (1) fulfill SJVAPCD's emission reduction commitments in the PM_{10} and Ozone Attainment Plans, (2) achieve emission reductions from the construction and use of development projects through design features and on-site measures, and (3) provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures.

The rule is applicable to any applicant (any person or entity that undertakes a development project) that, upon full buildout and for retail/commercial uses, has a project encompassing 2,000 square feet or more. Therefore, the rule is applicable to the proposed project.

Rule 9510 requires applicants subject to the rule to provide information that enables SJVAPCD to quantify the construction and operational NO_X, and PM_{10} exhaust emissions. Rule 9510 requires construction exhaust emissions to be reduced by 20% for NO_X and 45% for PM_{10} when compared to the statewide fleet average. For operations, emissions of NO_X must be reduced by 33.3% and emissions of exhaust PM_{10} must be reduced by 50%; the operations emissions reductions may occur over a period of 10 years. Both construction and operations emissions reductions may be achieved by on-site measures or by payment of an off-site fee, or by a combination of both methods. However, if the initial emissions calculation shows that emissions would be less than 2 tons per year (tpy) of NO_X or exhaust PM_{10}, then emission reduction measures are not required.

On-site measures for mitigation of construction emissions may include the use of cleaner fuels, retrofitted equipment on engines and exhaust systems, and the use of new, low-emissions engine types. Measures to reduce operations emission include building designs for energy efficiency and site designs and procedures to reduce trip generation.

City of Manteca General Plan

The City of Manteca General Plan (City General Plan) includes several policies specifically related to air quality. The following policies of the City General Plan would apply to the project:

- **Policy AQ-P-1:** Cooperate with other agencies to develop a consistent and coordinated approach to reduction of air pollution and management of hazardous air pollutants.
- **Policy AQ-P-2:** Develop a land use plan that will help to reduce the need for trips and will facilitate the common use of public transportation, walking, bicycles, and alternative fuel vehicles.
- **Policy AQ-P-4:** Develop and maintain street systems that provide efficient traffic flow and thereby minimize air pollution from automobile emissions.
- **Policy AQ-P-5:** Develop and maintain circulation systems that provide alternatives to the automobile for transportation, including bicycle routes, pedestrian paths, bus transit, and carpooling.

- **Policy AQ-P-7:** New construction will be managed to minimize fugitive dust and construction vehicle emissions.
- **Policy AQ-P-10:** Encourage energy efficient building designs.

TOXIC AIR CONTAMINANTS

Air quality regulations also focus on TACs or in federal parlance HAPs. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 4.3-2). Instead, EPA and ARB regulate TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by SJVAPCD establish the regulatory framework for TACs.

Federal Hazardous Air Pollutant Programs

Title III of the CAA requires the EPA to promulgate National Emissions Standards for Hazardous Air Pollutants (NESHAP) for certain categories of sources that emit one or more pollutants identified as HAPs/TACs. Emission standards may differ between "major sources" and "area sources" of TACs. Major sources are defined as stationary sources with potential to emit more than 10 tpy of any TAC or more than 25 tpy of any combination of TACs; all other sources are considered area sources. Promulgation of the emission standards involves 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 is required to promulgate health risk–based emissions standards where such standards are deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The 1990 amendments to the CAA required EPA to promulgate vehicle or fuel standards containing reasonable requirements to control TAC emissions, applying 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 of the CAA also required the use of reformulated gasolines in selected US cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions, including toxics.

State Toxic Air Contaminant Programs

ARB works in partnership with the local air districts to enforce regulations that reduce TACs in the state. It has authority for motor vehicles, fuels, and consumer products. ARB identifies the TACs, researches prevention or reduction methods, adopts standards for control, and enforces the standards. TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Tanner Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Hot Spot Act). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as 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 (e.g., ATCM that limits truck idling to 5 minutes [13 CCR Chapter 10 Section 2485]).

ARB identified diesel PM as a TAC in August 1998. Diesel PM is currently ARB's primary TAC of concern for mobile sources, in part because, of all controlled TACs, diesel PM emissions are estimated to be responsible for

approximately 70% of the total ambient TAC risk (ARB 2000). In 2000, ARB developed and approved the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines.* ARB is now implementing an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles and is currently developing regulations designed to reduce diesel PM emissions from diesel-fueled engines and vehicles. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions. These regulations require substantial reductions in diesel PM emissions beginning with the 2004 model year. Additional more stringent standards will apply to engines starting in the 2007 model year. Off-road vehicles will come under more stringent regulation beginning with the 2005 model year. Each of these sets of regulations will serve to significantly reduce diesel PM emissions and long-term human health risks attributable to diesel-fueled vehicles and equipment.

Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1,3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year-2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

The California State Legislature has also examined TAC hazards and has adopted several bills to control TACs. Implementation of state-adopted legislation pertaining to the control of TACs is the responsibility of ARB and local air pollution control districts. The most important legislation applicable to the proposed project is summarized below.

The Tanner Toxics Act

The Tanner Toxics Act established the California TAC control program (AB 1807, Health and Safety Code Section 39666 et seq.) to identify and control TACs. Under the act, ARB is required to identify a substance as a TAC based on the review of the scientific data and the recommendations by both the Office of Environmental and Health Hazard Assessment (OEHHA) and the Scientific Review Panel. After designation, ARB investigates appropriate measures to limit emissions of the TACs. These measures may include emission limitations, control technologies, operation and maintenance requirements, closed-system engineering, cost, or substitution of compounds. ARB then prepares a report on the appropriate degree of regulation and adopts ATCM. These control measures are the minimum regulations that must be imposed by each of the local air districts in the form of regulations. Districts must adopt rules that are at least as stringent as those of the state.

Air Toxics "Hot Spots" Information and Assessment Act

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) is a state law enacted in 1987. The law requires certain facilities to submit information regarding emissions of more than 550 TACs to their local air pollution control districts. The act addresses public concerns that emissions from individual facilities might cause local concentration of TAC "hot spots" at a level where individuals may be exposed to an excess risk of adverse health effects. The program requires facilities to notify all exposed persons if it is determined that there is a significant health risk. AB 2588 was amended in 1993 by Senate Bill (SB) 1731, the Facility Toxic Air Contaminant Risk Reduction Audit and Plan. In accordance with SB 1731, local air districts are required to establish a program to reduce risks from existing facilities that are deemed to pose a significant health risk.

Diesel-Fueled Commercial Motor Vehicle Idling

The ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling was approved by the Office of Administrative Law (OAL) in January 2005 and became effective February 1, 2005. The control measure was adopted as part of a program to reduce public exposure to diesel PM. The measure applies to all diesel-fueled vehicles over 10,000 pounds (lb), regardless of the state in which they are registered. The ATCM restricts idling of commercial trucks for more than 5 minutes at any location. It contained several exemptions, including when a primary engine is used to power a heater, air conditioner, or any ancillary equipment during sleeping or resting in a sleeper berth. However, in January 2008, as part of the Heavy Duty Vehicle Idling Emissions Reduction Program, heavy-duty trucks are prohibited from idling to maintain comfortable sleeper berth conditions. Other exemptions were made for transport vehicles that must idle to keep their products intact, weather restrictions, and emergency or health emergency vehicles. Idling is not permitted in school areas or 100 feet from a restricted area for more than 5 minutes unless the vehicle is engaged in working activities.

Local Toxic Programs

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. The local air districts have the authority over stationary or industrial type sources. Under SJVAPCD Regulation IV, Rule 4002: National Emissions Standards for Hazardous Air Pollutants and Regulation VII: Toxic Air Pollutants, all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and air toxics control measures. SJVAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. It requires a comprehensive health risk assessment for facilities that are put in the significant risk category under the Assembly Bill (AB) 2588 Program (Air Toxics "Hot Spot" Information and Assessment Act of 1987).

Sources that require a permit are analyzed by SJVAPCD (e.g., health risk assessment [HRA]) on the basis of their potential to emit toxics. If it is determined that the project would emit toxics in excess of SJVAPCD's threshold of significance for TACs, as identified below in Thresholds of Significance, sources must implement BACT to reduce emissions. If a source cannot reduce the risk below the threshold of significance, even after BACT has been implemented, SJVAPCD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that SJVAPCD's air quality permitting process applies to stationary sources; properties that are exposed to elevated levels of nonstationary type sources of TACs, and the nonstationary type sources themselves (e.g., on-road vehicles), are not subject to air quality permits. Further, for reasons of feasibility and practicality, mobile sources (cars, trucks, etc.) are not required to implement BACT, even if they do have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on such sources (e.g., vehicles) are subject to regulations implemented on the federal and state levels.

ODORS

Federal Odor Programs

Odors are typically considered a local air quality problem. EPA has not established regulations that deal with the generation of odors. However, local air districts have developed rules (e.g., nuisance) that apply to and regulate the generation of odors. As shown below in the SJVAPCD Rules and Regulations, the air district enforces rules that pertain to odors (i.e., nuisances).

State Odor Programs

As discussion above, odors tend to be a local problem. The regulatory framework for odors is discussed further below in the Local Regulations Setting.

Local Odor Programs

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and the SJVAPCD. The SJVAPCD has determined some common types of facilities that have been known to produce odors, including wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the SJVAPCD has no rules or standards related to odor emissions other than its nuisance rule. Any actions related to odors are based on citizen complaints to local governments and the SJVAPCD. According to the SJVAPCD, significant odor problems occur when there is more than one confirmed complaint per year averaged over a 3-year period or when there are three unconfirmed complaints per year averaged over a 3-year period (SJVAPCD 2002).

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odor. In the first situation, the SJVAPCD recommends operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects locating near a source of odors where there is no nearby development that may have filed complaints, and for odor sources locating near existing sensitive receptors, the SJVAPCD requires the determination of potential conflict to be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility (SJVAPCD 2002).

GREENHOUSE GAS EMISSIONS

Federal Greenhouse Gas Programs

The U.S. Supreme Court ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA and that EPA has the authority to regulate emissions of GHGs. However, at the time of writing this draft environmental impact report (DEIR), no federal regulations or policies regarding GHG emissions are applicable to the proposed project.

State Greenhouse Gas Programs

Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed AB 1493 (Statutes 2002, Chapter 200) (amending Health & Safety Code, Section 42823 and adding Health & Safety Code, Section 43018.5). AB 1493 (also known as the Pavley Bill) requires that ARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible

reduction of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the State."

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR Section 1900, 1961), and adoption of Section 1961.1 (13 CCR Section 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term (2009-2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013-2016) standards will result in a reduction of about 30%.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961 as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al.*). The suit in the U.S. District Court for the Eastern District of California contended that California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various Federal laws, regulations, and policies.

In January 2007, the judge hearing the case accepted a request from the State Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court case, *Massachusetts, et al., v. Environmental Protection Agency, et al.*, the primary issue in question was whether the CAA provides authority for EPA to regulate CO_2 emissions. EPA contended that the CAA does not authorize regulation of CO_2 emissions, whereas Massachusetts and 10 other states, including California, sued EPA to begin regulating CO_2. As mentioned above, the U.S. Supreme Court ruled on April 2, 2007, that GHGs are "air pollutants" as defined under the CAA and EPA is granted authority to regulate CO_2 (*Massachusetts v. U.S. Environmental Protection Agency* [2007] 549 U.S. 05-1120).

On December 12, 2007, the court found that if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard), these regulations would be consistent with and have the force of Federal law, thus, rejecting the automakers' claim. This authorization to implement more stringent standards in California was requested in the form of a CAA Section 209, subsection (b) waiver in 2005. Since that time, EPA failed to act on granting California authorization to implement the standards. Governor Schwarzenegger and Attorney General Edmund G. Brown filed suit against EPA for the delay. In December 2007, Stephen Johnson, the EPA Administrator, denied California's request for the waiver to implement AB 1493. Johnson cited the need for a national approach to reducing greenhouse gas emissions, the lack of a "need to meet compelling and extraordinary conditions," and the benefits to be achieved through the Energy Independence and Security Act of 2007 as support for his denial (EPA 2008e). The State of California has filed suit against EPA for its decision to deny the CAA waiver.

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the snowpack on the Sierra Nevada mountain range, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To address those concerns, the executive order established total GHG emission targets. Specifically, emissions must be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The executive order directed the Secretary of the Cal/EPA to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the Secretary of the Cal/EPA created the California Climate Action Team (CCAT) made up of members from various state agencies and commissions. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local government, and communities and through state incentive and regulatory programs.

Assembly Bill 32, California Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006 (See Statutes 2006, Chapter 488, enacting Health & Safety Code, Section 38500–38599.) AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for base-load generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a base-load combined-cycle plant fired by natural gas. The legislation further requires that all electricity provided to California, including imported electricity, be generated from plants that meet the standards set by CPUC and CEC.

Executive Order S-1-07

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at over 40% of statewide emissions. It establishes a goal that carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10% by 2020. This order also directed ARB to determine if this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early action measure after meeting the mandates in AB 32.

Senate Bill 97

SB 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under the California Environmental Quality Act (Statutes 2007, Chapter 185, enacting Public Resources Code, Section 21083.05 and 21097.) This bill directs the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency is

required to certify and adopt those guidelines by January 1, 2010. This bill also removes, both retroactively and prospectively, the legitimacy of litigation for inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E). This provision will be repealed by operation of law on January 1, 2010, at which time such projects, if any remain unapproved, will no longer be protected against litigation claims from failure to adequately address climate change issues. In the future, this bill will only protect a handful of public agencies from CEQA challenges on certain types of projects for a few years time.

Senate Bill 1078

SB 1078 addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20% of their supply from renewable sources by 2017. SB 107 changed the target date to 2010. This senate bill would affect statewide GHG emissions associated with electricity generation, which would indirectly affect the proposed project. The implications of SB 1078 and 107 is discussed further in Cumulative Impacts.

Climate Change Proposed Scoping Plan

In December 2008, ARB approved the *Climate Change Proposed Scoping Plan* (*Scoping Plan*), which is the proposed plan to achieve GHG reductions in California required by AB 32 (ARB 2008h). The *Scoping Plan* contains the main strategies California will implement to achieve reduction of 169 million metric tonnes (MMT) of carbon dioxide equivalent emissions (CO_2e), or approximately 30%, from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10%, from 2002-2004 average emissions). The *Scoping Plan* also includes a breakdown of the amount of GHG reductions that ARB recommends for each emissions sector of the state's GHG inventory. The largest GHG reductions are recommended from improved vehicle emission standards (estimated reductions of 31.7 MMT CO_2e), a low-carbon fuel standard (15 MMT CO_2e), energy efficiency measures in buildings and appliances (26.3 MMT CO_2e), and a renewable portfolio standard for electricity production (21.3 MMT CO_2e). ARB also recommends that reductions be achieved through local government actions and regional GHG targets; however, the exact amount is still to be determined. The *Scoping Plan* acknowledges that land use change shall play an important role that affects various emission sectors including transportation, energy, water and wastewater, solid waste and recycling. The ultimate assignments to local governments to achieve GHG reductions will become known as ARB finalizes its scoping plan. Also noteworthy is the fact that the *Scoping Plan* does not include any direct discussion about GHG emissions generated by construction activity.

Local Greenhouse Gas Programs

In August 2008, SJVAPCD's Governing Board adopted a Climate Change Action Plan (CCAP). The CCAP authorized the Air Pollution Control Officer (APCO) to develop guidance documents to assist land use agencies and other permitting agencies in addressing GHG emission as part of the CEQA process, investigate the development of a GHG banking program, enhance the existing emissions inventory process to include GHG emission reporting consistent with state requirements, and administer voluntary GHG reduction agreements. A staff report was released in November 2008 to provide a starting point for developing the items called for in the CCAP. The report provides a summary of background information on global climate change, the current regulatory environment surrounding GHG emissions, and the various concepts in addressing the potential impact of global climate change. The report also evaluates methodologies for estimating impacts and summaries mitigation measures. No specific approach is recommended, but the report does present several methodologies for analysis that are currently being explored and vetted by other agencies.

4.3.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Short-term construction-generated criteria air pollutant (e.g., PM_{10}) and precursor emissions (ROG and NO_X) were assessed in accordance with SJVAPCD-recommended methods. Where quantification was required, emissions were modeled using the URBEMIS 2007 Version 9.2.4 computer model (Rimpo and Associates 2008). Project-specific information (e.g., type and number of construction equipment required, and maximum daily acreage disturbed) provided by the applicant were input into URBEMIS 2007 to estimate construction-related emissions. Where project-specific information was not available, URBEMIS 2007's default input parameters for San Joaquin County were used to estimate emissions. Predicted short-term construction-generated emissions were compared with applicable SJVAPCD thresholds for determination of significance.

Long-term operational (i.e., mobile and area source) criteria air pollutant and precursor emissions were also quantified using the URBEMIS 2007. Modeling was based on project-specific data (e.g., size and type of proposed uses) and trip generation information from the traffic study prepared for the project (Fehr & Peers 2008). In addition, San Joaquin County-specific parameters for vehicle fleet and trip lengths were used to estimate mobile source emissions associated with the project's operation. Due to the strictly commercial and retail nature of the project, no wood burning stoves, gas stoves, or hearth emissions were included in this analysis. Predicted long-term operational emissions were compared with applicable SJVAPCD thresholds of significance to determine the significance of impacts.

The CCAR Protocol includes a calculation methodology for electricity use, which was used to estimate GHG emissions associated with the electricity consumption of the proposed project. The GHG emissions associated with electricity consumption in the buildings could be generated at power plants that are a long distance from the project site; however, given that climate change is inherently a global issue, the location where GHG emissions are released is not important. In addition, the GHG emissions related to the electricity usage associated with water consumption by the project were estimated using methodologies from published literature and case studies (Gleick 2003, SCAG 2001).

GHG emissions generated by the proposed project would predominantly be in the form of CO_2. While emissions of other GHGs such CH_4N_2O are important with respect to global climate change, the emission levels of these GHGs for the sources associated with project operations are relatively small compared with CO_2 emissions, even considering their GWP. Therefore, all GHG emissions for construction and operation are reported as CO_2.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following thresholds of significance, as identified by the State CEQA Guidelines (Appendix G) and SJVAPCD (SJVAPCD 2002, 2008b), have been used to determine whether implementation of the proposed project would result in significant air quality impacts. Thus, implementation of the proposed project would result in significant air quality impacts if:

- Short-term construction-related emissions of criteria air pollutants or precursors violate any air quality standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations (i.e., for PM_{10}, if emissions exceed the SJVACPD-recommended threshold of 15 tpy or if SJVAPCD-required control measures in compliance with Regulation VIII-Fugitive Dust Prohibition or other project applicable SJVAPCD-recommended mitigation measures are not incorporated into project design or implemented during project construction, and for ROG and NO_X, if emissions exceed the SJVAPCD-recommended threshold of 10 tpy),

- Long-term operational (regional) emissions of criteria air pollutants or precursors violate any air quality standard or contribute substantially to an existing or projected air quality violation, expose sensitive receptors

to substantial pollutant concentrations, or conflict with or obstruct implementation of the applicable air quality plan (i.e., for PM_{10}, if emissions exceed the SJVACPD-recommended threshold of 15 tpy or if SJVAPCD-required control measures in compliance with Regulation VIII-Fugitive Dust Prohibition or other project applicable SJVAPCD-recommended mitigation measures are not incorporated into project design or implemented during project operation, and for ROG and NO_X, if emissions exceed the SJVAPCD-recommended threshold of 10 tpy),

- Long-term operational (local) emissions of criteria air pollutants or precursors violate any air quality standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations (i.e., for CO, if emissions exceed the 20 ppm (1-hour) or 9 ppm (8-hour) standards),

- Short-term construction-related or long-term operational emissions of TACs expose sensitive receptors to substantial pollutant concentrations (i.e., if exposure to an ARB and/or EPA-identified TAC exceeds 10 in one million for excess cancer risk or one hazard index (HI) for noncancer risk at the Maximally Exposed Individual (MEI),

- Short-term construction or long-term operations create objectionable odors affecting a substantial number or people (i.e., if project implementation locates receptors near an existing odor source where one confirmed complaint per year averaged over a three year period, or three unconfirmed complaints per year averaged over a three year period has been experienced by existing receptors as close as the project to the odor source; or by existing receptors in the vicinity of a similar facility considering distance, frequency, and odor control, where there is currently no nearby development and for proposed odor sources near existing receptors).

Lastly, at the time of this analysis, no local or state air quality regulatory agency in California, including ARB and local air districts throughout California, has identified a significance threshold for GHG emissions generated by a proposed project, or a methodology for analyzing impacts related to GHG emissions or global climate change. It should be noted that ARB is the in process of developing statewide "interim significance thresholds" to evaluate GHG impacts, which include performance standards and measures for new development (ARB 2008). This effort by ARB is still in the preliminary draft stage and is expected to be finalized in early 2009. Nevertheless, the proposed project was compared to ARB's proposed interim performance standards.

By adoption of the Climate Solutions Act and Public Resources Code Sections 21083.05 and 21097, however, the State of California has established GHG reduction targets and has determined that GHG emissions as they relate to global climate change are a source of adverse environmental impacts in California that should be addressed under CEQA. Although the Climate Solutions Act did not amend CEQA, the legislation does include language identifying the various environmental problems in California caused by global warming (Health and Saf. Code, Section 38501(a).) SB 97, in contrast, did amend CEQA to require OPR to prepare CEQA Guidelines revisions addressing the mitigation of GHGs or their consequences. By only giving certain limited projects protection against CEQA claims based on the alleged failure to properly assess climate change impacts in the environmental documents used to approve them, the Legislature implied that the environmental review for other projects would have to address the issue of global warming when impacts are potentially significant (project or cumulative). In June 2008, as an interim step toward development of required guidelines, OPR recently released a technical advisory recommending, among other things, that CEQA documents consider the impacts of GHGs, quantify the emissions where feasible, and develop measures to mitigate impacts when significant (OPR 2008). In any event, the proper context for addressing the issue in an EIR is the discussion of cumulative impacts, since while the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet GHG emission targets of the Climate Solutions Act, California would need to generate in the future less GHG emissions than current levels. It is recognized, however, that for most projects there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels or conflict with the goals of the Climate Solutions Act.

Although the text of the Climate Solutions Act strongly suggests that, when ARB interprets and applies the definition of "Greenhouse gas emission source," the regulations promulgated pursuant to the legislation will apply primarily, if not exclusively, to stationary sources of GHG emissions (see Health and Safety Code, Section 38505(i)), this mandate demonstrates California's commitment to reducing the rate of GHG emissions and the state's associated contribution to climate change, without intent to limit population or economic growth within the state. Thus, to achieve the goals of the Climate Solutions Act, which are tied to GHG emission rates of specific benchmark years (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population (per person) than it has now. Further, in order to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than was achieved in 1990. (The goal to achieve 1990 quantities of GHG emissions by 2020 means that this will need to be accomplished with 30 years of population and economic growth beyond 1990 in place.) Thus, future projects that would not encourage reductions in GHG emissions (or continue at "Business as Usual" emission rates) would conflict with the policy decisions contained in the spirit of the Climate Solutions Act, thus impeding California's ability to comply with the mandate. In addition, if a project would be affected by the reasonably foreseeable effects of climate change, the project should be designed to adapt to altered future conditions.

While the text of the Climate Solutions Act focuses on major stationary and area sources of GHG emissions, the primary objective of the Climate Solutions Act is to reduce California's contribution to global warming by reducing California's total annual production of GHG emissions. The impact that GHG emissions have on global climate change is not dependent on whether they were generated by stationary, mobile, or area sources, or whether they were generated in one region or another. Thus, helping to meet the state's requirements for GHG emissions reductions is the best metric for determining whether the proposed project would contribute to global warming. In the case of the proposed project, if the project does not substantially reduce, compared to "business as usual" (i.e., emissions at today's rates), its potential GHG emissions to a rate that provides for the efficiency to attain 1990 levels by the year 2020 then for purposes of this project would be considered substantial, and the impact of the project would be cumulatively considerable (significant). The *Scoping Plan* includes multiple GHG emission reduction measures that would help reduce GHG emissions associated with the operation of the proposed project. Based on a variety of data, including the Draft ARB Scoping Report, the project would need to produce 30% less GHG emissions than under "business as usual" circumstances expected for this type and size of project to attain the efficiency targets that would help the state attain AB 32 goals.

In addition to quantifying and disclosing the mass level of GHG emissions associated with the proposed project, as recommended by OPR (OPR 2008), this analysis also evaluates the project's construction and operational emissions with respect to the evolving regulatory context under AB 32. Particular focus will be placed on the project design's consistency with guidance published by the Attorney General's (AG) office, OPR, and ARB (Department of Justice 2008, OPR 2008, ARB 2008), which are recommendations on how land use development projects can reduce their GHG emissions and impacts and help achieve the goals of AB 32. The impacts associated with the project's GHG emissions will be analyzed in Chapter 5, "Cumulative Impacts," Section 5.3.4 "Global Climate Change."

PROJECT IMPACT ANALYSIS

IMPACT 4.3-1 *Air Quality — Generation of Short-Term, Temporary Construction-Related Emissions of ROG, NO_X, and PM_{10}. Construction-related emissions associated with development of the proposed project would not exceed SJVAPCD's mass emission thresholds of significance for ROG, NO_x, or PM_{10} (10 tpy, 10 tpy, and 15 tpy, respectively). However, SJVAPCD-required control measures with respect to PM are not currently part of the project design or description. Thus, project-generated, construction-related emissions, specifically PM_{10}, could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the SJVAB. As a result, this temporary impact would be a* ***significant*** *.*

Construction-related activities associated with development of the proposed project would result in emissions of criteria air pollutants (e.g., PM_{10}) and ozone precursors (e.g., ROG and NO_X) from site preparation (e.g., clearing, grading, and excavation); off-road construction equipment, material haul trucks, and worker commute exhaust emissions; asphalt paving; application of architectural coatings; and other miscellaneous activities. Although construction emissions are short-term and temporary in nature, there is still the potential to substantially contribute to an existing or projected air quality violation and conflict with the applicable air quality plan in the region. Development of the proposed project would occur in three distinct phases: Phase I, Phase II, and Phase III. The following information provided by the applicant describes the land uses and proposed construction schedule for each phase.

- **Mass Site Grading (October 2009 to January 2010):** Mass grading of the proposed developed areas would occur over a 3-month period. This phase would also include an on-site balanced cut/fill operation moving approximately 50,000 cubic yards of soil. Minor fine site grading would still be required for each of the subsequent phases for building pad preparation.

- **Phase I Northern Retail Site (November 2009 to November 2010):** Construction of the 21.91-acre Northern Retail Site would occur over a 12–month period. This phase would construct 23,700 square feet (sf) of restaurant space, 30,900 sf of retail space, and 171,200 sf of miscellaneous retail space. Phase I land uses would require asphalt paving for 987 parking spaces and access roads for the proposed project.

- **Phase II Central Retail Site (November 2010 to June 2012):** The Central Retail Site would include 17.22 acres to be developed over 19 months. This phase would construct 18,600 sf of restaurant space, 33,000 sf of retail space, 61,400 sf of miscellaneous retail space, and 65,000 sf of market space. Phase II land uses would require asphalt paving for 777 parking spaces.

- **Phase III Southern Retail Site (June 2012 to June 2013):** The Southern Retail Site would include 5.55 acres of be developed over 12 months. This phase would construct 13,000 sf of restaurant space, 13,500 sf of retail space, and 19,700 sf of bookstore space. Phase III would require asphalt paving for 263 parking spaces.

As discussed above in Analysis Methodology, construction-related emissions associated with development of the proposed project were estimated using URBEMIS 2007. Project-specific information (e.g., land use types and amounts, total acres disturbed, and parking spaces required) provided by the applicant was used to estimate construction emissions where available. For all other information, URBEMIS default assumptions were used, which are based on land use types and sizes. The annual ROG and NO_X emission levels associated with each year of construction are presented and compared with the SJVAPCD thresholds of significance in Table 4.3-3.

In addition to building construction and finishing activities discussed above, each phase would require site preparation activities that would generate fugitive dust emissions. In addition, an initial phase of mass site grading would be performed to prepare the entire site for development. Fine site grading for each development phase would be performed prior to any building construction or asphalt paving. Due to the relatively flat nature of the existing site, fine site grading would be minimal for each phase. Nevertheless, the SJVAPCD requires that all grading operations implement the fugitive dust control measures contained in Regulation VIII. The SJVAPCD requires that all construction activities implement effective and comprehensive mitigation measures (i.e., Regulation VIII) (SJVAPCD 2002). The SJVAPCD considers compliance with Regulation VIII and implementation of the necessary control measures from Table 6-2 and 6-3 of GAMAQI to be sufficient to reduce construction-related PM_{10} impacts to a less-than-significant level. Lastly, due to the fact that project would result in a disturbance area of more than 5 acres for non-residential development, the applicant is required to submit a Dust Control Plan to the SJVAPCD's Air Pollution Control Officer (APCO). Construction activities cannot commence until the Dust Control Plan is approved by the APCO. For informational purposes, the $PM_{2.5}$ emissions associated with each construction year were also estimated and are also shown in Table 4.3-4.

Table 4.3-4
Summary of Modeled Annual Construction-Related Emissions of Criteria Air Pollutants and Precursors

Construction Year/Construction Activities	Total Annual Emissions (tons/year) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$ [2]
2009				
Mass Site Grading (Cut/Fill Operations)	0.2	2.2	3.8	0.9
Phase I (Northern Retail Site)	1.2	2.5	0.8	0.3
Total Annual Emissions for 2009	1.4	4.7	4.6	1.2
2010				
Phase I (Northern Retail Site)	2.0	1.0	0.1	0.1
Phase II (Central Retail Site)	0.7	2.2	0.6	0.2
Total Annual Emissions for 2010 [3]	2.7	3.2	0.7	0.3
2011				
Phase II (Central Retail Site)	2.1	2.3	0.2	0.2
Total Annual Emissions for 2011	2.1	2.3	0.2	0.2
2012				
Phase III (Central Retail Site)	1.0	2.4	0.3	0.2
Total Annual Emissions for 2012	1.0	2.4	0.3	0.2
Maximum Annual Emissions in Any Year (Unmitigated)	2.7	4.7	4.6	1.2
SJVAPCD Rule 9510 Reductions [4]	-	2.5	0.4	-
Maximum Annual Emissions in Any Year (Mitigated) [5]	2.7	4.7	2.6	0.8
SJVAPCD Significance Threshold (tons/year)	10	10	15	None [6]

Notes:

NO_X = oxides of nitrogen

PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less

$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less

ROG = reactive organic gases

SJVAPCD = San Joaquin Valley Air Pollution Control District

[1] Mass emissions represent the total emissions that would occur within a given construction year.

[2] Emissions of $PM_{2.5}$ are shown for informational purposes only. $PM_{2.5}$ is a subset of PM_{10}.

[3] Construction activities for both Phase I and Phase II would occur in year 2010. Therefore, emissions associated with each phase that would occur in 2010 were added together to calculate the total 2010 annual emissions associated with the proposed project.

[4] SJVAPCD Rule 9510 requires a 20% reduction of total NO_X and 45% reduction of total PM_{10} exhaust emissions. Values shown represent total reductions required by Rule 9510 throughout the entire construction phase and are not meant to be additive to the annual totals shown.

[5] In accordance with Regulation VIII control measures (i.e., reduce vehicle speeds on unpaved roads to less than 15 miles per hours (MPH) and water disturbed surfaces effectively stabilize dust emissions), the mitigated total reflects a 44% reduction in fugitive PM_{10} dust emissions from unpaved roads and a 55% reduction in PM_{10} dust emissions from soil disturbance activities.

[6] SJVAPCD has not identified mass emissions thresholds for construction-related emissions of $PM_{2.5}$. Emissions are shown for informational purposes only.

Source: Modeling performed by EDAW 2008

As shown in Table 4.3-4, construction-related emissions associated with development of the proposed project would not exceed SJVAPCD's mass emission thresholds of significance for ROG, NO_X, or PM_{10} (10 tpy, 10 tpy, and 15 tpy, respectively) during any single calendar year. Moreover, even if some delays in the construction schedule occurred such that two phases were constructed within a 12-month period, their combined emission levels would not exceed SJVAPCD's thresholds of significance. For example, if Phase 2 was fully constructed in 2010 along with Phase 1, total construction emissions would still not exceed the SJVAPCD thresholds of significance. However, SJVAPCD-required control measures with respect to PM_{10} are not currently part of the project design or description. Thus, project-generated, construction-related emissions, specifically PM_{10}, could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the SJVAB. As a result, this temporary impact of PM_{10} would be a **significant**.

IMPACT 4.3-2 *Air Quality — Generation of Long-Term Operational Emissions of Criteria Air Pollutants and Precursors. Following full buildout of the proposed project, emissions of criteria air pollutants and precursors associated with the daily operation of the proposed project would exceed SJVAPCD's thresholds of significance for ROG and NO_X of 10 tpy. Operational emissions of PM_{10} would not exceed the SJVPACD's threshold of significance for PM_{10}. Nevertheless, operational emissions could violate or contribute substantially to an existing or projected air quality violation, conflict with the applicable air quality planning efforts, and/or expose sensitive receptors to substantial pollutant concentrations. This long-term impact would be* ***significant****.*

Area and Mobile Sources

Following full buildout of the proposed project, long-term operational criteria air pollutant and precursor emissions would be generated by mobile- and area-source emissions. Mobile-source criteria air pollutant and precursor emissions would be generated by motor vehicles (i.e., customers and employees) traveling to and from the project and periodic heavy-duty delivery trucks. Area-source emissions would be generated as a result of periodic landscape maintenance activities, natural gas combustion for space and water heating, and the periodic application of architectural coatings associated with ongoing building maintenance. Operational emissions associated with full buildout of the project were estimated using URBEMIS 2007, which is designed to model emissions from land use development projects. URBEMIS allows the user to select a project area (e.g., county, air district) for which URBEMIS contains specific parameters such as trip distances, vehicle fleet distribution, and climatic conditions. URBEMIS also estimates criteria air pollutant and precursor emissions associated with the area sources based on the size and types of land uses selected. Mobile-source emissions were estimated using trip generation rates that were developed specifically for the project by a traffic analyst, which are shown in Table 4.11-13 in the Section 4.11 Transportation and Circulation.

Table 4.3-5 shows the operational emissions associated with full buildout of the proposed project. Although it is acknowledged that lesser levels of operational emissions would be generated once Phase I and II become operational, Table 4.3-5 shows the annual operational emissions associated with the earliest full year after full buildout of all three phases of the project (i.e., operation of Phase I, II, and III).

Stationary Sources

The proposed project would include stationary sources of pollutants that would be required to obtain permits to operate under SJVAPCD Rule 2020 (Permits Required), and Rule 2201 (New and Modified Stationary Sources). These sources would include but not be limited to standby diesel generators, central heating boilers, and kitchen equipment. The permit process would assure that these sources would be equipped with the required emission controls and that, individually, these sources would not cause a significant environmental impact. As permitted stationary sources, they would not be subject to the SJVAPCD Rule 9510 (ISR). Nonetheless, the emissions from these sources would be additive to the estimated area and mobile source emissions discussed above.

As shown in Table 4.3-5, even with the emission reduction requirements of SJVAPCD Rule 9510, the operational emissions associated with the proposed project would exceed the SJVAPCD operational thresholds of significance for ROG and NO_X. The SJVAPCD significance thresholds are regional thresholds established by the SJVAPCD as part of its plan to achieve the attainment goals of the SJVAB established in the air quality plan. Accordingly, the proposed project would be considered to contribute substantially to the existing air quality violations, potentially conflict with efforts to reach attainment of any air quality standards, and expose sensitive receptors to substantial pollutant concentrations. The long-term impact would be **significant**.

Table 4.3-5
Summary of Modeled Operational Emissions of Criteria Air Pollutants and Precursors Generated

Source	Annual Emissions (tpy)1			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Area Sources				
Natural Gas	0.1	0.8	0.00	0.00
Landscape Maintenance	0.0	0.00	0.00	0.00
Architectural Coatings	0.5	-	-	-
Mobile Sources				
Motor Vehicles (Customers and Employees)[2]	17.7	24.5	13.4	3.1
Total Annual Operational Emissions (without implementation of Rule 9510)	18.3	25.3	13.4	3.1
SJVAPCD Rule 9510 Reductions[3]	-	8.4	6.7	-
Total Annual Operational Emissions (with implementation of Rule 9510)	18.3	16.8	6.7	3.1
SJVAPCD **Significance Thresholds (tpy)**	10	10	15	None[4]

Notes:
ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$ is a subset of PM_{10}); ROG = reactive organic gases; SJVAPCD = San Joaquin Valley Air Pollution Control District; tpy = tons per year

1 Emissions shown represent the annual operational emissions for the year 2013 which is the earliest year when the proposed project would be fully operational.

2 Emissions generated by on-site heavy-duty delivery trucks and TRUs are not included in this table. As shown in Table 2 of the Health Risk Assessment, which is discussed under Impact 4.3-4 below, in Appendix C, delivery trucks and TRUs would contribute approximately 22.2 pounds of PM_{10} per year. This amount would be nominal with respect to the total PM_{10} emissions shown above (without Rule 9510). Emission levels of ROG, NO_X, and $PM_{2.5}$ from on-site trucks and TRUs are also expected to be nominal in comparison to total operational emissions.

3 SJVAPCD Rule 9510 requires a 33% reduction in NO_X and 50% reduction in PM_{10} operational emissions for a period of 10 years. Values shown represent the annual emission reductions required by Rule 9510.

4 SJVPACD has not identified an operational mass emissions threshold for PM_{10} or $PM_{2.5}$. Mass emission levels for these pollutants are shown for informational purposes only.

Refer to Appendix C for detailed assumptions and modeling output files.

Source: Data modeled by EDAW in 2008.

IMPACT 4.3-3 *Air Quality — Contribution to Local Traffic Congestion and Mobile-Source CO Concentrations. Implementation of the project would result in the generation of CO at nearby intersections from increased vehicular traffic on the local transportation network. However, the project would not contribute to CO concentrations that exceed the CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour. Therefore, the project's contribution to localized mobile- source CO concentrations would be* ***less than significant.***

The primary mobile-source pollutant of localized concern is CO. Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. The SJVAPCD has established a qualitative screening threshold to determine if the project would have the potential to exceed the CO ambient air quality standard. According to the GAMAQI, a project has the potential to cause a localized exceedance of the CO standard if the traffic study determines that: 1) the project would impact local intersections and streets such that the Level of Service (LOS) would be reduced to LOS E or F, or 2) the project would substantially worsen an already existing LOS F on a local street or intersection.

Based on Table 4.11-24 in Section 4.11, Transportation and Circulation, there would be no signalized intersections in the project-study area that would operate at an unacceptable LOS with the project after implementation of recommended traffic mitigation, nor would any intersection LOS be reduced from acceptable (i.e., LOS D and above) to unacceptable LOS (i.e., LOS E or F) as a result of the project (Fehr & Peers 2008). All remaining signalized intersections in the project vicinity are projected to operate at acceptable levels of service (i.e., LOS D, or better) under mitigated cumulative-plus-project peak-hour conditions.

Due to the fact that the proposed traffic mitigation in Section 4.11 Transportation and Circulation is not guaranteed, local mobile-source CO concentrations were also assessed using a screening-level procedure developed by Sacramento Metropolitan Air Quality Management District (SMAQMD), which was modified to be applicable to the project study area through using background ambient air quality data that is representative of the project area. This analysis conservatively estimates the background CO concentration in the project study area and the project-generated pollutant concentration to estimate the combined concentration level. Based on this analysis, the 1- and 8-hour background CO concentrations (highest concentrations in the last 3 years from Table 4.3-1) were determined to be 4.4 ppm and 2.9 ppm, respectively. The SMAQMD Guide to Air Quality Assessment provides a table (Table 5.3) to determine rollback concentrations for projects with a future buildout year. The SMAQMD assumes that background CO concentrations will decrease with time due to more stringent vehicle emission control standards. For this analysis, the buildout year 2013 was used to determine rollback values of 1.9 ppm and 0.4 ppm for the 1-hour and 8-hour background concentrations, respectively. Project-generated 1- and 8-hour CO emissions from peak hour daily trips were calculated to be 7.0 ppm and 4.9 ppm, respectively. Therefore, the background plus proposed project traffic is anticipated to generate concentrations of 8.9 ppm and 5.3 ppm for the 1-hour and 8-hour standard, respectively. Thus, implementation of the proposed project would not result in or contribute to local CO concentrations that exceed the California 1-hour or 8-hour ambient air quality standards of 20 ppm or 9.0 ppm, respectively.

Thus, based on the two screening criteria above, project-generated long-term operational local mobile-source emissions of CO would not result in or substantially contribute to emissions concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm, respectively. As a result, this impact would be **less than significant**.

IMPACT 4.3-4 *Air Quality — Exposure of Sensitive Receptors to Emissions of Toxic Air Contaminants. Construction and operation of the proposed project would result in increased health risk levels associated with short-and long-term emissions of diesel PM and other TACs. However, the incremental increase in health risk levels, including cancer risk and noncancer chronic risk, would not exceed applicable thresholds at nearby sensitive receptors. As a result, this impact would be* ***less than significant****.*

The exposure of sensitive receptors to emissions of TACs from on-site sources during construction and operation of the proposed project are discussed separately below.

Short-term Construction-Related Emissions

Construction-related activities would result in temporary, short-term project-generated emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment for site preparation (e.g., demolition, excavation, grading, and clearing); paving; application of architectural coatings; and other miscellaneous activities. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003). At this time, SJVAPCD has not adopted a methodology for analyzing such impacts and does not recommended the completion of HRAs for construction-related emissions of TACs, with a few exceptions (e.g., where construction phase is the only phase of project) (Reed, pers. comm., 2007).

In January 2001, EPA promulgated a Final Rule to reduce emission standards for 2007 and subsequent model year heavy-duty diesel engines. These emission standards represent a 90% reduction in NO_x, 72% reduction of non-methane hydrocarbon emissions, and 90% reduction of PM emissions in comparison to the 2004 model year emission standards. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after treatment-based exhaust standards NO_x and PM starting in 2011 that are more than 90% lower than current levels, putting emission factors from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to OEHHA, HRA, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed project (Salinas, pers. comm., 2004). Thus, because the use of off-road heavy-duty diesel equipment would be temporary in combination with the highly dispersive properties of diesel PM (Zhu and Hinds 2002) and further reductions in exhaust emissions, project-generated, construction-related emissions of TACs would not expose sensitive receptors to substantial emissions of TACs. As a result, this impact would be **less than significant**.

Long-Term Operation-Related Emissions

A HRA was performed to assess the potential health risk associated with TACs generated by the operation of the proposed project, which would occur for an indefinite length of time. This HRA was performed to determine the exposure (i.e., risk levels) of existing nearby sensitive-receptors (e.g., residences, schools, and worker sites) from on-site TAC emission sources.

Implementation of the proposed project would result in TAC emissions from various operation-related activities, including diesel PM from on-site travel and idling by heavy duty delivery trucks, some with transport refrigeration units; and naphthalene and polycyclic aromatic hydrocarbons from the charbroilers and grills used in the restaurants that would operate on the project site.

Air quality dispersion modeling was conducted using the U.S. EPA-approved AERMOD dispersion model (version 5.8.0) to determine the concentration levels at existing nearby sensitive receptors. Emission rates for haul trucks were identical to those recommended by SJVAPCD's Modeling Guidance. The HARP software package (Version 1.4a, updated September 2008) (ARB 2008i) developed by ARB for conducting HRAs in California under the Air Toxics Hot Spots Program was used to evaluate potential health risk associated with operation of the trucks, TRUs, and restaurants. In addition to emission rate information, all air dispersion modeling was based on five sequential years of hourly preprocessed meteorological data provided by SJVAPCD and assumed flat terrain.

The HRA evaluated increased cancer risk and chronic noncancer health hazards at specific nearby locations where people may be exposed to emissions of TACs, including residences, schools, and worker sites (A detailed map of these discrete receptor locations is shown in Figure 4 of the HRA in Appendix C.) Carcinogenic risks and potential chronic noncancer health effects were assessed using the dispersion modeling, as described in the preceding sections, and numerical values of toxicity provided by OEHHA (OEHHA 2008). The HRA evaluated cancer and noncancer health effects from inhalation exposure at individual sensitive receptors, including nearby residences, schools, and worker sites. Because the pollutants of concern do not have published toxicity factors for short-term (acute) exposure, this HRA evaluated only potential long-term health impacts.

Health risk impacts were identified at actual locations of residential, school, and worker receptors surrounding the proposed project site. A summary of maximum cancer risk and noncancer health impacts values is shown in Table 4.3-6.

Table 4.3-6
Summary of Modeled Maximum Health Risk Impacts by Individual Receptor

Individual Receptor Type	Health Risk Impact[1]	
	Cancer Risk (per million)	Noncancer Chronic Hazard Index
Residential Receptors		
Maximum Exposed Individual Resident (MEIR)	2.3	0.00001
Worker (Occupational) Receptors		
Maximum Exposed Individual Worker (MEIW)	0.1	4.48E-06
School Receptors		
Maximum Exposed Individual Child (MEIC)	0.1	—
Threshold	**10**	**1**

[1] Cancer risk shown is total cancer risk, expressed in cases per million people, from diesel particulate matter, polycyclic aromatic hydrocarbons, and naphthalene. Cancer risk for residential receptor is based on a 70-year exposure. Cancer risk for worker receptors is based on an adjusted worker exposure in accordance with OEHHA (OEHHA 2008) and the SJVAPCD Modeling Guidance (SJVAPCD 2006). The cancer risk shown for the school is based on a 9-year student exposure using inhalation and body weight factors developed by OEHHA for children.

See Appendix C for detailed input parameters and modeling results.

Sources: Modeling performed by AECOM Environmental 2008

Of the 118 residential locations identified in the project area for evaluating the maximum increase in individual health risk impacts (as shown in Figure 4 of the HRA in Appendix C), the incremental increase in cancer risk at the Maximum Exposed Individual Receptor (MEIR) was determined to be 2.3 in 1 million (Table 4.3-5). The HI for increased noncancer chronic risk at the MEIR was determined to be 0.00001 (Table 4.3-5). Both the MEIR for increased cancer risk and highest HI for noncancer chronic risk occurred at an existing residence located east of the proposed project site across South Union Road.

As shown in Table 4.3-6, increased cancer risk at the Maximum Exposed Individual Worker (MEIW), based on worker exposure assumptions, was determined to be 0.1 in one million. This worker receptor is located of the proposed project site along Childs Avenue. The HI for increased noncancer chronic risk at the MEIW was 0.000004 and occurred at the Veritas Elementary School located approximately 1,000 feet east of the project site.

Two schools were identified within 1 kilometer of the proposed project site. For evaluating school receptors, two health risk analyses were conducted. The first was to evaluate the increase in potential health risk impacts to children that attend the schools using the 9-year exposure scenario available in the HARP model to estimate health risk for children. This exposure scenario accounts for the higher breathing rate to body mass ratio of a child compared to an adult and is appropriate for use in estimating exposure to children. The second assessment treated the schools as worker receptors, similar to the analysis performed for identification of impacts at the MEIW, to account for adult staff employed at the schools.

The levels of increased cancer risk at all receptors estimated in this health risk analysis were less than the SJVAPCD significance level of 10 in one million. In addition, operation of the project would not result in HIs for noncancer chronic risk at any receptor that would exceed SJVAPCD's recommended threshold of 1.0. In summary, based on the results of this HRA, human health risks and effects from long-term operational on-site emissions associated with the proposed project would not result in the exposure of any off-site sensitive receptors to levels that exceed applicable thresholds. As a result, this is **a less-than-significant** impact.

IMPACT 4.3-5 Air Quality — Create objectionable odors affecting a substantial number or people. *Implementation of the proposed project would not be expected to expose a substantial number of people to objectionable odors. This would be a less-than-significant impact.*

The occurrence and severity of odor impacts depends on numerous factors including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose individuals to objectionable odors would be deemed to have a significant impact. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities, among others. The GAMAQI includes recommended distances that serve as screening levels regarding how far projects should be located away from these types of odor-generating facilities. For projects located within these recommended screening distances to potentially significant odor sources, the SJVAPCD has established qualitative thresholds to determine odor impacts. A significant odor problem is determined when a facility generates either 1) more than one confirmed complaint per year averaged over a three-year period, or 2) three unconfirmed complaints per year average over a three-year period.

Construction and operation of the proposed project are not anticipated to expose nearby off-site receptors (existing or future planned) to objectionable odors. Although specific commercial and retail uses have not yet been identified, land uses considered to be minor sources of odors may be developed. Such sources typically include dry cleaning establishments, restaurants, and gasoline stations. Fast food restaurants have the potential to generate odors from the operation of charbroilers and deep fat fryers. On-site trash receptacles used by the new commercial land uses also have the potential to create odors. Receptors located in the general vicinity of such sources may be exposed on a frequent basis to odors from these sources. Generally, residential receptors located within and adjacent to the commercial-mixed-use land use designations would be of primary concern.

However, while there is a potential for odors to occur, compliance with industry standard odor control practices and SJVAPCD Rule 4102 (Nuisance) would limit potential odor impacts. In addition, it is anticipated that any waste product from retail operations that has the potential to emit odors (e.g., trash enclosures) would be packaged in sealed containers and/or handled in a manner that would not emit any objectionable odors. Further, these facilities would be located within common solid waste collection areas near the center of the project site and therefore would be sufficiently distant from off-site sensitive receptors.

Odor impacts can also occur if a project were to location sensitive receptors in close proximity to an existing odor source. In this case, the proposed project would be located approximately 1.5 miles southeast of the City of Manteca Wastewater Quality Control Facility, which is closer than SJVAPCD's recommended screening distance. However, no unconfirmed or confirmed odor complaints have been registered by the existing receptors in the area surrounding the wastewater quality control facility in the past 3 years (Morris, pers. com., 2008). Therefore, the project would not be anticipated to result in the exposure of a substantial number of people to objectionable odors. As a result, this impact would be **less than significant**.

4.3.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.3-3: Contribution to Local Traffic Congestion and Mobile-Source CO Concentrations.

Impact 4.3-4: Increase in DPM Operational Emissions and Associated Health Risk Impacts

Impact 4.3-5: Increase in Odorous Emissions.

Mitigation is recommended for the following significant impacts.

Mitigation Measure 4.3-1: Generation of Short-Term, Temporary Construction-Related Emissions of Criteria Air Pollutants and Precursors.

The applicant's contractors shall implement the following standard dust control measures from Table 6-2 of the GAMAQI during construction of the proposed project, as required by SJVAPCD Regulation VIII:

- 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, or vegetative ground cover.
- All onsite unpaved construction roads and offsite unpaved construction 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 and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 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 least once every 24 hours when operations are occurring. (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 surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.

In addition to the measures identified above, the following enhanced and additional control measures from Table 6-3 of the GAMAQI shall be implemented by the applicant's contractors:

- Onsite vehicle speeds on unpaved roads shall be limited to 15 mph.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1 percent.

- Wheel washers shall be installed for all exiting trucks and equipment, or wheels shall be washed to remove accumulated dirt prior to leaving the site.
- The contractor shall install wind breaks at windward side(s) of the construction area.
- Excavation and grading activities shall be suspended when winds exceed 20 mph.
- The overall area subject to excavation and grading at any one time shall be limited to the fullest extent possible.

The City, after consultation with the applicant, shall require all feasible additional measures to control construction emissions to be implemented by the applicant's contractors. Such measures may include, but are not limited to the following items from Table 6-4 of the GAMAQI and other sources:

- Onsite equipment shall be maintained and properly tuned in accordance with manufacturers' specifications.
- When not in use, onsite equipment shall not be left idling.
- Construction scheduling shall limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use at any one time.

Construction of the proposed project shall comply with SJVAPCD's ISR (Rule 9510), as required by law. The applicant shall submit and have approved an Air Impact Assessment (AIA) application to SJVAPCD no later than applying for a final discretionary approval with the City of Manteca. The AIA application shall be submitted on a form provided by the SJVAPCD and contain, but not be limited to, the applicant's name and address, detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA shall quantify construction NO_X and PM_{10} emissions associated with the project. This assessment shall include: an estimate of construction emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project, or each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. The general mitigation requirements in the assessment, as contained in the ISR rule, shall include the following:

- Exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project shall be reduced by 20% of the total NO_X and by 45% of the total PM_{10} emissions from the statewide average as estimated by ARB.
- Methods employed by the applicant to reduce construction emissions to the degree noted above include using less polluting construction equipment, including the use of add-on controls, cleaner fuels, or newer lower emitting equipment. The emissions reduction targets listed above shall be met through any combination of on-site emission reduction measures or offset fees, including those required and other mitigation measures listed above.

The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and other mitigation measures listed above; however, any on-site emission reductions must be both quantifiable and verifiable to be credited towards the requirements of the ISR Rule.

Mitigation Measure 4.3-2: Air Quality—Generation of Long-Term Operational-Related Emissions of Criteria Air Pollutants and Precursors.

The following mitigation measures would reduce emissions of criteria air pollutants and precursors associated with the day-to-day operational activities of the proposed project. The applicant shall be responsible for the implementation and funding of all of these measures unless otherwise noted. It should be noted that all of the mitigation measures listed below that would reduce criteria air pollutant and precursor emissions would also help reduce GHG emissions. Similarly, the greenhouse gas reduction measures required by Mitigation Measure 5 -1

would also reduce indirect emissions of criteria air pollutants and precursors; however, these reductions may or may not occur in the SJVAB.

- Provide secure, covered bicycle parking for employees consistent with the requirements of the City of Manteca Municipal Code. This may consist of a separate secure, covered bicycle parking area at each employment venue or one or more large shared bicycle parking areas to be used by workers employed at multiple stores. This measure is consistent with CAPCOA's mitigation measure MM T-1 (CAPCOA 2008).

- Maximize bicycle parking for shoppers throughout the site consistent with the requirements of the City of Manteca Municipal Code. Where feasible, at least one bike rack shall be located within 100 feet of each store entrance.

- Incorporate into the project design preferential parking spaces and charging stations for Neighborhood Electric Vehicles (NEV). The applicant shall also provide preferential parking for Hybrid Electric Vehicles (HEV) and Natural Gas Vehicles (NGV). Preferential parking spaces for NEVs, HEVs, and NGVs shall not affect any handicap parking requirements. After five (5) full years of operation, the Applicant and the City can reconsider these requirements based on both their effectiveness and future unforeseen changes to the fleet of vehicles operated by shoppers in the City of Manteca.

- Transit route maps and schedules, as well as contact information for the San Joaquin County Council of Governments Commute Connection program, shall be posted at each worksite by employers. The Applicant shall include this requirement in the commercial lease agreements for every tenant on the project site.

- Provide a transit stop along Atherton Drive and/or within the project site (i.e., Phase 1) and work with Manteca Transit and the City of Manteca to extend a bus route to one or both of these locations. At the time of writing this EIR Manteca Transit is in the process of extending one of its bus routes to pass by the project along South Union Road (Ferriera, pers. com., 2008). The applicant shall work with Manteca Transit and City of Manteca to add another transit stop along Atherton Road or within the project site (i.e., Phase 1) that would provide a safe, convenient transit stop for project employees and customers. The transit stop shall include a covered waiting area, benches, route information, and lighting. Providing public transit access to the project site is consistent with the City of Manteca's General Plan Policies AQ-P-1 (cooperate with agencies to reduce air pollution), AQ-P-2 (facilitate public transit), AQ-P-4 (efficient traffic flow), and AQ-P-5 (alternative transportation). Providing a sheltered transit stop is also consistent with CAPCOA's mitigation measure MM T-7. Furthermore, this measure is consistent with Measure 25 of SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for alternative transit (SJVAPCD 2007).

- Post signs at all loading docks and truck loading areas which indicate that diesel-powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by OAL in January 2005.

- All businesses on the project site that receive deliveries by trucks with operating transport refrigeration units (TRUs) shall provide electrification connections for powering those TRUs while during loading and unloading activities.

- To the extent feasible, stores shall schedule delivery trucks during daytime off-peak traffic hours to reduce congestion and vehicle idling on the site. The applicant shall express this preference in writing at the time of establishing commercial lease agreements with project tenants.

- In order to ensure a pedestrian-friendly environment the applicant shall incorporate into the project design a network of clearly marked pedestrian pathways that provide connection among the various on-site retail and from these uses to the transit stop located on or adjacent to the site. Provide shade trees and/or shade structures (e.g., using solar panels) that shade at least 75% of on-site pedestrian pathways. This measure is

consistent with Measure 1 of SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for alternative transit (SJVAPCD 2007).

- Incorporate into the project design pedestrian access points on the east, west, and south sides of the site to allow for pedestrian connectivity to the site. No pedestrian access point would be required to the north of Phase 1 Northern Retail Site due to presence of SR 120. This measure is consistent with Measure 8 of SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for alternative transit 8 and CAPCOA's mitigation measure MM T-5 (CAPCOA 2008).

- Plant native, drought resistant, and low maintenance plant species for landscaping pursuant to CAPCOA's mitigation measure MM D-17 (CAPCOA 2008).

Operation of the proposed project shall comply with SJVAPCD's ISR (Rule 9510), as required by law. The applicant shall submit an AIA application to the SJVAPCD no later than applying for a final discretionary approval with City of Manteca. The AIA application shall be submitted on a form provided by the SJVAPCD and contain, but not be limited to, the applicant's name address, detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA shall quantify operational NOX and PM10 emissions associated with the project. This shall include the estimated operational baseline emissions (i.e., before mitigation), and the mitigated emissions for each applicable pollutant for the project, or each phase thereof, and shall quantify the off-site fee, if applicable. General mitigation requirements, as contained in the ISR rule, include the following:

1) Applicants shall reduce 33.3% of the project's operational baseline NOX emissions over a period of ten years as quantified in the approved AIA.

2) Applicants shall reduce 50% of the project's operational PM10 emissions over a period of ten years as quantified in the approved AIA.

The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and additional measures listed in below for criteria air pollutants and precursors and Mitigation Measure 4.3-7 for GHG emissions. However, any on-site reductions of criteria air pollutants and precursors must be both quantifiable and verifiable to be credited toward the requirements of the ISR Rule.

4.3.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As shown in Table 4.3-3, construction-related emissions of ROG, NO_X, and PM_{10} would not exceed the SJVAPCD's thresholds of significance for during any of the construction years. Implementation of the Mitigation Measure 4.3-1 (i.e., SJVAPCD Regulation VIII) is considered to be sufficient by the SJVAPCD to reduce construction-related PM_{10} impacts to a **less-than-significant** level.

Implementation of Mitigation Measure 4.3-2 would help reduce mobile source emissions of ROG and NO_X; however, the extent to which the measures would be able to reduce emissions is dependent on the behavior of project customers and employees. In addition, the project's current operational emissions exceed the SJVAPCD significance thresholds by 183% and 168% for ROG and NO_X, respectively. It is not expected that even with full implementation and participation in the proposed mitigation measures that operational emissions would be reduced to a less-than-significant level. Therefore, the impact is considered **significant and unavoidable**.

4.4 NOISE

This section includes a summary of applicable noise regulations and a description of ambient noise conditions in the project area. It also includes an analysis of noise impacts associated with implementation of the project in terms of (1) short-term construction noise, (2) long-term operational stationary-source noise, (3) long-term operational mobile-source noise, (4) compatibility of proposed land uses with on-site noise levels, and (5) groundborne vibration. This section also recommends mitigation measures, as necessary, to reduce potentially significant noise impacts. Noise modeling data are available in Appendix D of this DEIR.

4.4.1 ENVIRONMENTAL SETTING

ACOUSTIC FUNDAMENTALS

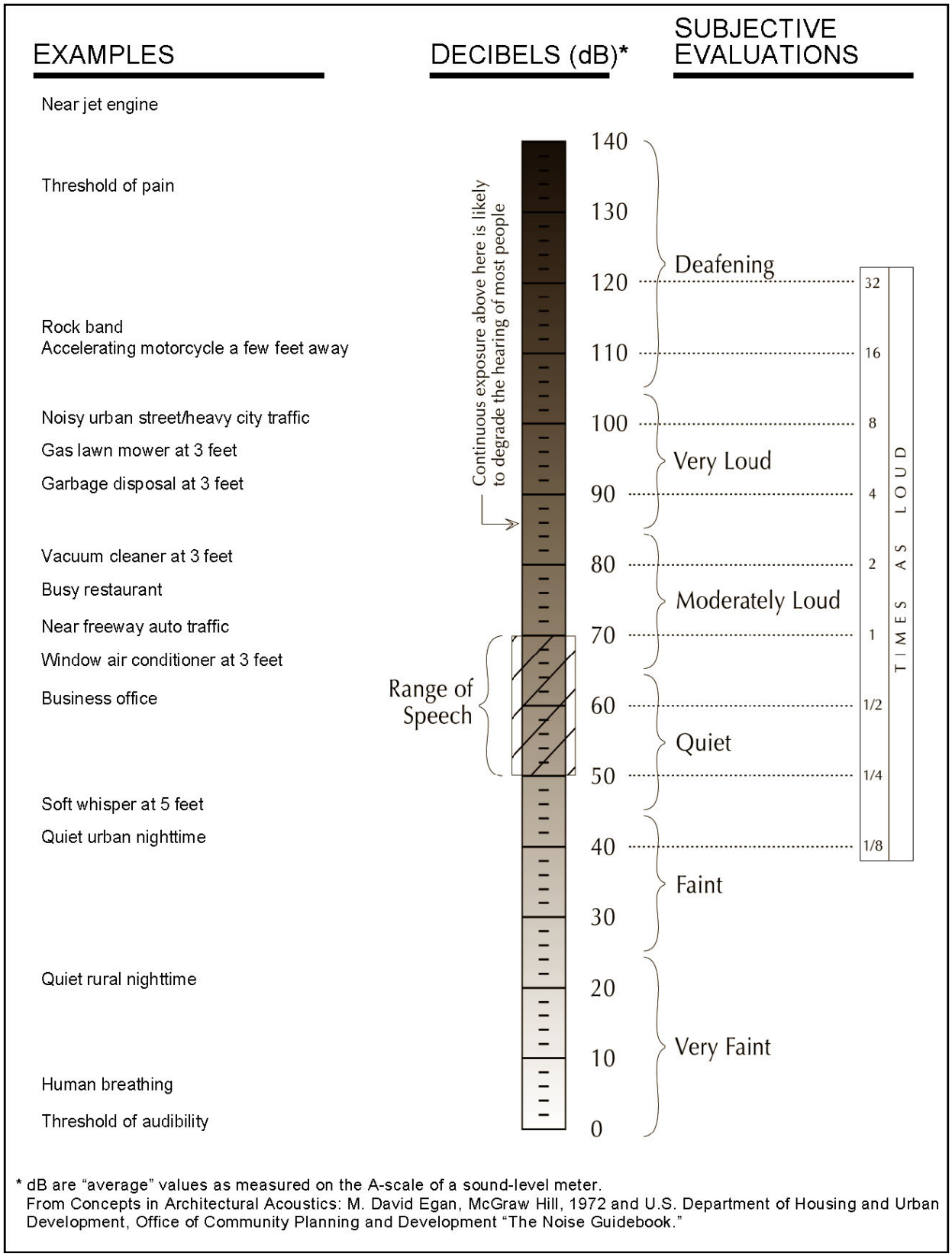
Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise; consequently, the perception of sound is subjective in nature, and can vary substantially from person to person. Common environmental noise sources and noise levels are presented in Exhibit 4.4-1.

A sound wave is initiated in a medium by a vibrating object (e.g., vocal chords, the string of a guitar or the diaphragm of a radio speaker). The wave consists of minute variations in pressure, oscillating above and below the ambient atmospheric pressure. The number of pressure variation cycles occurring per second is referred to as the frequency of the sound wave and is expressed in hertz (Hz).

Directly measuring sound pressure fluctuations would require the use of a very large and cumbersome range of numbers. To avoid this and have a more useable numbering system, the decibel scale was introduced. A sound level expressed in decibels is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure. For sound pressure in air the standard reference quantity is generally considered to be 20 micropascals (μPa), which directly corresponds to the threshold of human hearing. The use of the decibel is a convenient way to handle the million-fold range of sound pressures to which the human ear is sensitive too. A decibel is logarithmic; as such it does not follow normal algebraic methods and cannot be directly added. For example, a 65 decibel (dB) source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100 fold increase in acoustical energy.

The loudness of sound preserved by the human ear is dependent primarily on the overall sound pressure level and frequency content of the sound source. The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. The standard weighting networks are identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels (abbreviated dBA). For this reason the dBA can be used to predict community response to environmental, and transportation noise. Sound levels expressed as dB in this section are A-weighted sound levels, unless noted otherwise.

Noise can be generated by a number of sources, including mobile sources (transportation noise sources), such as automobiles, trucks and airplanes; and stationary sources (nontransportation noise sources), such as construction sites, machinery, commercial and industrial operations. As acoustic energy spreads through the atmosphere from the source to the receiver, noise levels attenuate (decrease) dependent on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers (walls, building facades, berms). Noise generated from mobile sources generally attenuate at a rate of 4.5 dB per doubling of distance (dB/DD). Stationary noise sources spread with more spherical dispersion patterns which attenuate at a rate of 6 dB to 7.5 dB/DD.



Source: Data compiled by EDAW 2008.

Common Noise Sources and Levels **Exhibit 4.4-1**

Atmospheric conditions such as wind speed, turbulence, temperature gradients, and humidity may additionally alter the propagation of noise, and affect levels at a receiver. Furthermore, the presence of a large object (barrier) between the source and the receptor can provide significant attenuation of noise levels at the receiver. The amount of noise level reduction or "shielding" provided by a barrier is primarily dependent upon the size of the barrier, the location of the barrier in relation to the source and receivers, and the frequency spectra of the noise. Natural barriers such as berms, hills, or dense woods, and manmade features such as buildings and walls may be used as noise barriers.

NOISE DESCRIPTORS

The intensity of environmental noise changes over time, and several different descriptors of time-averaged noise levels are used. The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of both the noise source and the environment. The noise descriptors most often used to describe environmental noise are defined below:

- L_{max} (Maximum Noise Level): The highest A/B/C weighted integrated noise level occurring during a specific period of time.
- L_{min} (Minimum Noise Level): The lowest A/B/C weighted integrated noise level during a specific period of time.
- Peak: The highest weighted or un-weighted instantaneous peak to peak value occurring during a measurement period.
- L_n (Statistical Descriptor): The noise level exceeded n percent of a specific period of time, generally accepted as an hourly statistic. An L_{10} would be the noise level exceeded 10% of the measurement period.
- L_{eq} (Equivalent Noise Level): The energy mean (average) noise level. The steady state sound level which, in a specified period of time contains the same acoustical energy as a varying sound level over the same time period.
- L_{dn} (Day-Night Noise Level): The 24-hour L_{eq} with a 10 dB "penalty" applied during nighttime noise-sensitive hours, 10:00 p.m. through 7:00 a.m. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.
- CNEL (Community Noise Equivalent Level): The CNEL is similar to the L_{dn} described above, but with an additional 5 dB "penalty" for the noise-sensitive hours between 7:00 p.m. to 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. If using the same 24-hour noise data, the CNEL is typically 0.5 dB higher than the L_{dn}.
- SEL (Sound Exposure Level): The SEL describes the cumulative exposure to sound energy over a stated period of time.
- SENEL (Single Event Noise Exposure Level): An SEL where, the measurement period is defined by the start and end times of a single noise event, such as an automobile passby, aircraft flyover, or individual industrial operations.

EFFECTS OF NOISE ON HUMANS

Excessive and chronic exposure to elevated noise levels can result in auditory and non auditory effects in humans. Auditory effects of noise on people are those relating to temporary or permanent noise induced hearing loss. Nonauditory effects of exposure to elevated noise levels are those relating to behavioral and physiological effects. The nonauditory behavioral effects of noise on humans is primarily associated with the subjective effects of

annoyance, nuisance, and dissatisfaction; which lead to interference with activities such as communications, sleep, and learning. The nonauditory physiological health effects of noise on humans has been the subject of considerable research efforts attempting to discover correlations between exposure to elevated noise levels and health problems, such as hypertension, and cardiovascular disease. The mass of research infers that noise-related health issues are predominantly the result of behavioral stressors and not a direct noise-induced response. The extent to which noise contributes to nonauditory health effects remains a subject of considerable research, with no definitive conclusions.

The degree to which noise results in annoyance and interference, is highly subjective and may be influenced by a number of nonacoustic factors. The number and effect of these nonacoustic environmental and physical factors varies depending on individual characteristics of the noise environment including sensitivity, level of activity, location, time of day, length of exposure, etc. One key aspect in the prediction of human response to new noise environments is the individual level of adaptation to an existing noise environment. The greater change in noise levels which are attributed to a new noise source, relative to the environment an individual has become accustom too, the less tolerable new noise source will be viewed.

With regard to human perception of increases in sound levels expressed in dB, a change of 1 dB is generally not perceivable excluding controlled conditions and pure tones. Outside of controlled laboratory conditions the average human ear barely perceives a change of 3 dB. A change of 5 dB generally fosters a noticeable change in human response, and an increase of 10 dB is subjectively heard as a doubling of loudness.

VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as operating factory machinery, or transient in nature, such as explosions. Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, and acceleration.

Vibration amplitudes are commonly expressed in peak-particle-velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration, and has been found to correlate well to the stresses experienced by buildings (FTA 2006, Caltrans 2004). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. The response of the human body to vibration relates well to average vibration amplitude; therefore, vibration impacts on humans are evaluated in terms of RMS vibration velocity. Similar to airborne sound, vibration velocity can be expressed in decibel notation as vibration decibels (VdB). The logarithmic nature of the decibel serves to compress the broad range of numbers required to describe vibration.

Typical outdoor sources of perceptible ground-borne vibration include construction equipment, steel-wheeled trains, and traffic on rough roads. Although the effects of vibration may be imperceptible at low levels, effects may result in detectable vibrations and slight damage to nearby structures at moderate and high levels, respectively. 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 damage to structural components. The range of vibration important to the proposed project occurs from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings (FTA 2006).

NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels. Schools, places of worship, hotels, libraries, nursing homes, retirement residences, and other places, where low interior noise levels are essential, are also considered noise-sensitive land uses.

Noise and vibration sensitive land uses in the vicinity of the project site include off-site rural and single family residential uses located to the east, west and south. The single family residences located to the east are shielded from the project site by an existing 8-foot high sound wall. The nearest off-site residential dwellings are located within 75 feet of the project site to the west and south of Central Retail Phase II and South Retail Phase III. Single family residential uses are located 150 feet west of North Retail Phase I.

EXISTING NOISE ENVIRONMENT

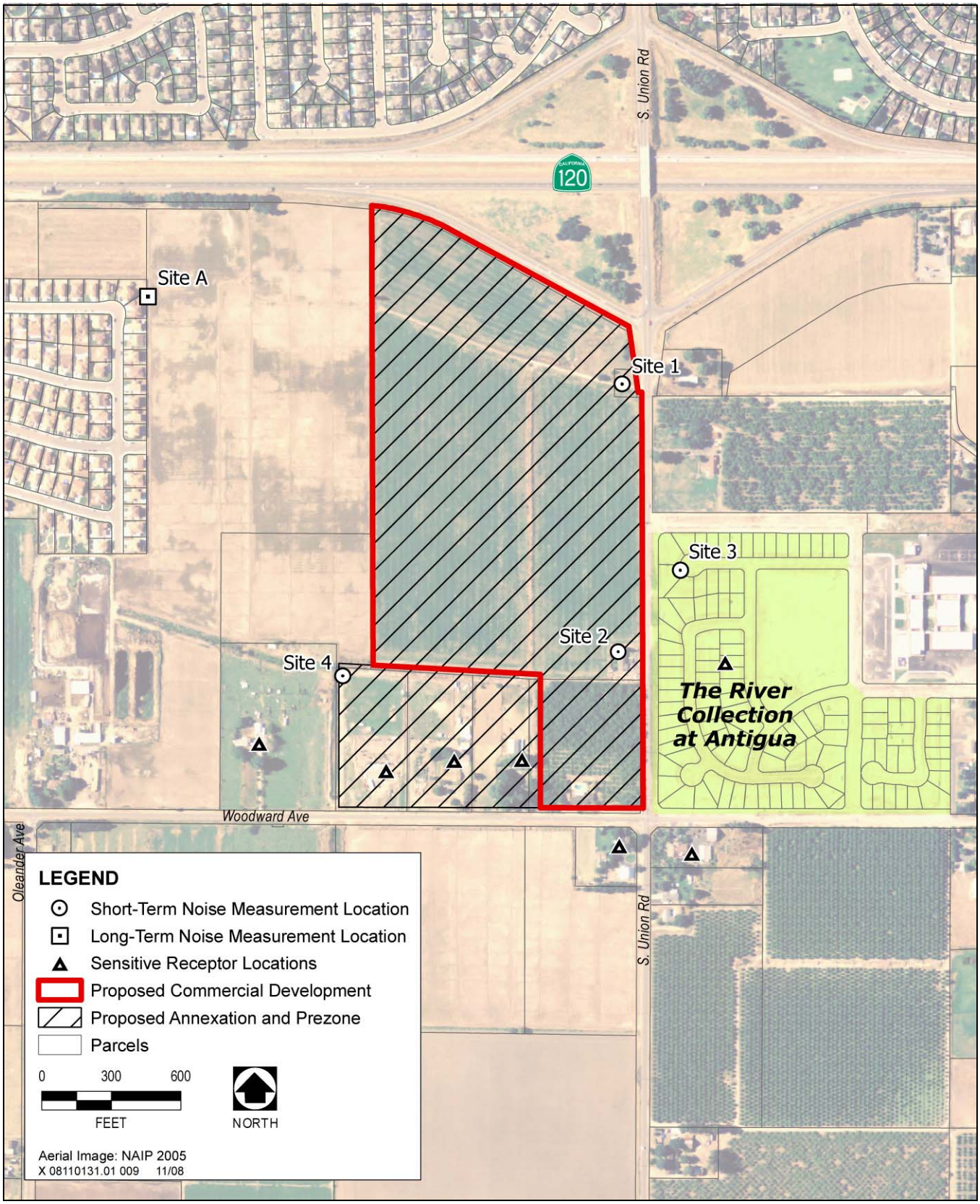
The existing noise environment within the project site is influenced primarily by transportation noise emanating from vehicular traffic on local roadways, agricultural aircraft over-flights and neighborhood activities (e.g., people talking, dogs barking, and operation of landscaping equipment). Traffic noise levels associated with State Route (SR) 120, South Union Road, and Woodward Avenue dominant the noise environment on the project site. Agricultural activities also contribute to the noise environment, but to a lesser extent. Additional noise sources present were adjacent rooftop heating, ventilation and air conditioning (HVAC) packages of adjacent buildings.

An ambient noise survey was conducted on the project site between January 17 and January 18, 2008. The purpose of the noise measurements was to establish a baseline ambient noise level for the existing setting. One noise measurement site was chosen to collect 24-hour noise level data in one hour intervals. Four short-term noise measurements were conducted on the project site and in the neighborhood east of South Union Road.

Long- and Short-term noise level measurements were taken in accordance with American National Standards Institute (ANSI) standards at eight locations using a Larson Davis Laboratories (LDL) Model 824 precision integrating sound level meter (SLM). The SLMs were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure that the measurements would be accurate. The equipment used meets all pertinent specifications of the ANSI for Type 1 SLMs (ANSI S1.4-1983[R2006]). Ambient noise survey locations are shown in Exhibit 4.4-2. The L_{eq}, L_{max}, and L_{50} values taken at each ambient noise measurement location are presented in Table 4.4-1. During the survey, average daytime hourly noise levels within the project area ranged from approximately 42 dB to 56 dB L_{eq}, with maximum noise levels that ranged from 48 dB to 70 dB $L_{max.}$

EXISTING TRAFFIC NOISE LEVELS

Existing vehicle traffic noise levels along proposed project haul routes were modeled by EDAW using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (FHWA 1978) and traffic data provided by Fehr & Peers, the traffic consultant for this project (Section 4.11, "Transportation and Circulation"). The FHWA model is based on CALVENO reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. Truck usage and vehicle speeds on study area roadways were estimated from field observations and Caltrans data where available (Caltrans 2007).



Source: San Joaquin County 2006, NAIP 2005, EDAW 2008

Noise Measure Locations **Exhibit 4.4-2**

Table 4.4-1
Ambient Noise Survey Measurements

Site	Noise Sources	L_{dn}	Average Measured Hourly Noise Levels, dB					
			Daytime (7 a.m.–10 p.m.)			Nighttime (10 p.m.–7 a.m.)		
			L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
A	Traffic on SR 120 and neighborhood activities	70.9	64.5	63.4	70.1	64.5	63.1	70.9
1	Traffic on SR 120 and South Union Road	—	60.3	56.5	76.5		—	
2	Traffic on South Union Road	—	54.3	48.1	66.3		—	
3	Playground noise, vehicle passbys, aircraft over-flights	—	48.1	45.4	62.8		—	
4	Traffic on SR 120, and rural residential noise (small tractor, goats)	—	48.6	48.3	52.7		—	

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; L_{eq} = the equivalent hourly average noise level; L_{50} = the noise level exceeded 50% of a specific period of time; L_{max} = maximum noise level.
Source: Data collected by EDAW in 2008

Table 4.4-2 summarizes the modeled traffic noise levels, 100 feet from the centerline of each roadway proposed for use associated with the project. Traffic noise modeling is based on existing average daily traffic (ADT) volumes, and lists distances from roadway centerlines to the 60 dB, 65 dB, and 70 dB L_{dn} traffic noise contours.

As shown in Table 4.4-2, the location of the 60 dB L_{dn} contour ranges from 13 to 7,559 feet from the centerline of the modeled roadways. The extent to which existing land uses adjacent to project roadway are affected by existing traffic noise depends on their respective proximity and their individual sensitivity to noise. Refer to Appendix D for complete modeling inputs and results.

Table 4.4-2
Summary of Modeled Existing Traffic Noise Levels

Roadway	Segment Location		L_{dn}, 100 feet from Roadway Centerline	Distance (feet) from Roadway Centerline to L_{dn} Contour		
	From	To		70 dB	65 dB	60 dB
SR 120	I-5	Yosemite Avenue	78.8	750	2,372	7,502
SR 120	Yosemite Avenue	Airport Way	78.7	743	2,349	7,430
SR 120	Airport Way	Union Road	78.6	724	2,290	7,241
SR 120	Union Road	Main Street	78.5	705	2,230	7,053
SR 120	Main Street	US - 99	78.2	659	2,084	6,590
Airport Way	Yosemite Avenue	Daniels Street	63.7	23	73	232
Airport Way	Daniels Street	State Route 120	64.3	27	85	270
Airport Way	State Route 120	Atherton Drive	61.8	15	48	152
Airport Way	Atherton Drive	Woodward Avenue	59.5	9	28	90
Airport Way	Woodward Avenue	Peach/McKinley Avenue	61.5	14	45	142

Table 4.4-2
Summary of Modeled Existing Traffic Noise Levels

Roadway	Segment Location		L_{dn}, 100 feet from Roadway Centerline	Distance (feet) from Roadway Centerline to L_{dn} Contour		
	From	To		70 dB	65 dB	60 dB
Union Road	Yosemite Avenue	Wawona Street	65.0	31	99	313
Union Road	Wawona Street	State Route 120	65.4	35	109	346
Union Road	State Route 120	Atherton Drive	60.6	11	36	114
Union Road	Atherton Drive	Woodward Avenue	60.0	10	31	100
Union Road	Woodward Avenue	Peach/McKinley Avenue	58.9	8	25	78
Main Street	Mission Ridge Drive	State Route 120	65.3	34	106	337
Main Street	State Route 120	Atherton Drive	61.9	16	49	156
Main Street	Atherton Drive	Woodward Avenue	61.9	16	49	156
Main Street	Woodward Avenue	Sedan Avenue	60.3	11	34	107
Woodward Avenue	McKinley Avenue	Airport Way	56.8	5	15	47
Woodward Avenue	Airport Way	Oleander Road	55.4	3	11	35
Woodward Avenue	Oleander Road	Union Road	55.8	4	12	38
Woodward Avenue	Union Road	Tinnin Road	59.2	8	26	82
Woodward Avenue	Tinnin Road	Main Street	59.3	9	27	85
Woodward Avenue	Main Street	Van Ryn Avenue	61.3	14	43	136

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level
Source: Fehr & Peers 2008, modeled by EDAW in 2008

4.4.2 REGULATORY SETTING

Various private and public agencies have established noise guidelines and standards to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise and vibration. Applicable standards and guidelines are discussed below.

FEDERAL NOISE CONTROL ACT OF 1972

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception the EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health and welfare, and the environment. Administrators of the EPA determined in 1981 that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to state and local governments. However, noise control guidelines and regulations contained in the rulings of the EPA in prior years remain upheld by designated federal agencies, allowing more individualized control for specific issues by designated federal, state and local government agencies.

FEDERAL TRANSIT ADMINISTRATION GUIDELINES

To address the human response to groundborne vibration, the Federal Transit Administration (FTA) has guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines recommend 65 VdB referenced to 1 microinch per second (μin/sec) and based on the root mean square (RMS) velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2006).

STATE OF CALIFORNIA GENERAL PLAN

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation.

The *State of California General Plan Guidelines 2003* (OPR 2003), published by the state Governor's Office of Planning and Research (OPR), provides guidance for the acceptability of projects within areas of specific noise exposure. Table 4.4-3 presents acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

Table 4.4-3
OPR Land Use Noise Compatibility Guidelines

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dB)			
	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Residential-Low Density Single Family, Duplex, Mobile Home	<60	55-70	70-75	75+
Residential-Multiple Family	<65	60-70	70-75	75+
Transient Lodging, Motel, Hotel	<65	60-70	70-80	80+
School, Library, Church, Hospital, Nursing Home	<70	60-70	70-80	80+
Auditorium, Concert Hall, Amphitheater		<70	65+	
Sports Arenas, Outdoor Spectator Sports		<75	70+	
Playground, Neighborhood Park	<70		67.5-75	72.5+
Golf Courses, Stable, Water Recreation, Cemetery	<75		70-80	80+
Office Building, Business Commercial and Professional	<70	67.5-77.5	75+	
Industrial, Manufacturing, Utilities, Agriculture	<75	70-80	75+	

[1] Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[2] New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[3] New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.

[4] New construction or development should generally not be undertaken.

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; CNEL = Community Noise Equivalent Level.

Source: State of California, Governor's Office of Planning and Research 2003

For the protection of fragile, historic, and residential structures from groundborne vibration, the California Department of Transportation recommends a more conservative threshold of 0.2 in/sec PPV for normal residential buildings and 0.08 in/sec PPV for old or historically significant structures (Caltrans 2004).

CITY OF MANTECA GENERAL PLAN

The Noise Element of the *City of Manteca General Plan 2003* (City General Plan) identifies goals, standards, and policies designed to ensure that City residents are not subjected to noise beyond acceptable levels. The Noise Element establishes noise criteria for determining land use compatibility for new and existing land uses affected by transportation and stationary noise sources. Several goals, policies, and implementation measures contained in the City General Plan Noise Element specifically address noise issues associated with the project site.

GOAL N-1: Protect the residents of Manteca from the harmful and annoying effects of exposure to excessive noise.

GOAL N-2: Protect the quality of life in the community and the tourism economy from noise generated by incompatible land uses.

GOAL N-3: Ensure that the downtown core noise levels remain acceptable and compatible with commercial and higher density residential land uses.

GOAL N-4: Protect public health and welfare by eliminating existing noise problems where feasible, by establishing standards for acceptable indoor and outdoor noise, and by preventing significant increases in noise levels.

GOAL N-5: Incorporate noise considerations into land use planning decisions, and guide the location and design of transportation facilities to minimize the effects of noise on adjacent land uses.

- **Policy N-P-1:** Areas within Manteca exposed to existing or projected exterior noise levels from mobile noise sources exceeding the performance standards in Table 9-1 (Table 4.4-4 of this EIR) shall be designated as noise-impacted areas.

- **Policy N-P-2:** New development of residential or other noise-sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the project design to satisfy the performance standards in Table 9-1 (Table 4.4-4 of this EIR).

- **Policy N-P-3:** The City may permit the development of new noise-sensitive uses only where the noise level due to fixed (nontransportation) noise sources satisfies the noise level standards of Table 9-2 (Table 4.4-5 of this EIR). Noise mitigation may be required to meet Table 9-2 (Table 4.4-5 of this EIR) performance standards.

- **Policy N-P-4:** The City shall require stationary noise sources proposed adjacent to noise sensitive uses to be mitigated so as to not exceed the noise level performance standards in Table 9-2 (Table 4.4-5 of this EIR).

- **Policy N-P-5:** In accord with the Table 9-2 (Table 4.4-5 of this EIR) standards, the City shall regulate construction-related noise impacts on adjacent uses.

- **Policy N-P-6:** Where the development of residential or other noise-sensitive land use is proposed for a noise-impacted area, an acoustical analysis is required as part of the environmental review process so that noise mitigation may be considered in the project design. The acoustical analysis shall:

    - Be the responsibility of the applicant.

- Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

- Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.

- Estimate existing and projected (20 years) noise levels in terms of the standards of Table 9-1 (Table 4.4-4 of this EIR) or Table 9-2 (Table 4.4-5 of this EIR), and compare those levels to the adopted policies of the Noise Element.

- Recommend appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element.

- Estimate noise exposure after the prescribed mitigation measures have been implemented.

- Describe a post-project assessment program that could be used to monitor the effectiveness of the proposed mitigation measures.

- **Policy N-P-7:** Noise level criteria applied to land uses other than residential or other noise-sensitive uses shall be consistent with noise performance levels of Table 9-1 (Table 4.4-4 of this EIR) and Table 9-2 (Table 4.4-5 of this EIR) .

- **Policy N-P-12:** The City shall require new roadways to be mitigated so as to not exceed the noise levels specified in Table 9-1 (Table 4.4-4 of this EIR). Widening or other improvement projects of existing roadways shall be mitigated to the most practical extent.

Implementation N-I-1: New development in residential areas with an actual or projected exterior noise level of greater than 60 dB L_{dn} will be conditioned to use mitigation measures to reduce exterior noise levels to less than or equal to 60 dB L_{dn}.

Implementation N-I-3: In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels are increased by 10 dB or more. An increase from 5-10 dB may be substantial. Factors to be considered in determining the significance of increases from 5-10 dB include:

- the resulting noise levels
- the duration and frequency of the noise
- the number of people affected
- the land use designation of the affected receptor sites
- public reactions or controversy as demonstrated at workshops or hearings, or by correspondence
- prior CEQA determinations by other agencies specific to the project

Implementation N-I-1: Control noise at the source through use of insulation, berms, building design and orientation, buffer space, staggered operating hours and other techniques. Use noise barriers to attenuate noise to acceptable levels.

Implementation N-I-6: Require an acoustical analysis where:

- Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels exceeding the levels specified in Table 9.1 (Table 4.4-4 of this EIR) or 9.2 (Table 4.4-5 of this EIR).

- Proposed transportation projects are likely to produce noise levels exceeding the levels specified in Table 9.1 (Table 4.4-5 of this EIR) or 9.2 (Table 4.4-5 of this EIR) at existing or planned noise sensitive uses.

Implementation N-I-7: Require that all acoustical analyses utilize a consistent format and be prepared in accordance with Policy N-P-6.

Implementation N-I-8: Work in cooperation with Caltrans and the Union Pacific Railroad to maintain noise level standards for both new and existing projects in compliance with Table 9-1 (Table 4.4-4 of this EIR).

Table 4.4-4
Maximum Allowable Noise Exposure Mobile Noise Sources

Land Use[4]	Outdoor Activity Areas[1]	Interior Spaces	
		L_{dn}/CNEL, dB	L_{eq}, dB[3]
Residential	60[2]	45	
Transient Lodging	60[2]	45	
Hospitals, Nursing Homes	60[2]	45	
Theaters, Auditoriums, Music Halls			35
Churches, Music Halls	60[2]		40
Office Buildings	65		45
Schools, Libraries, Museums			45
Playgrounds, Neighborhood Parks	70		

[1] Outdoor activity areas for residential development are considered to be backyard patios or decks of single family dwellings and the common areas where people generally congregate for multi-family developments. Outdoor activity areas for nonresidential developments are considered to be those common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

[2] In areas where it is not possible to reduce exterior noise levels to 60 dB L_{dn} or below using a practical application of the best noise-reduction technology, an exterior noise level of up to 65 L_{dn} will be allowed.

[3] Determined for a typical worst-case hour during periods of use.

[4] Where a proposed use is not specifically listed on the table, the use shall comply with the noise exposure standards for the nearest similar use as determined by the City.

Table 4.4-5
Performance Standards for Stationary Noise Sources or Projects Affected by Stationary Noise Sources[1,2]

Noise Level Descriptor	Daytime	Nighttime
	7 a.m. to 10 p.m.	10 p.m. to 7 a.m.
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65

[1] Each of the noise levels specified above should be lowered by five (5) dB for simple noise tones, noises consisting primarily of speech or music, or recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints.

[2] No standards have been included for interior noise levels. Standard construction practices should, with the exterior noise levels identified, result in acceptable interior noise levels.

CITY OF MANTECA ZONING ORDINANCE

The City's zoning ordinance specifies maximum allowable sound pressure levels for various land uses and provides groundborne vibration guidelines. Manteca Municipal Code 2003 - Title 17-Zoning contains the following:

> 17.13.030 Standards for determinations.
>
> Measurements necessary for enforcement of performance standards set forth in Section 17.43.040 of this chapter shall be taken at the following points:
>
> A. At the lot line of the establishment or use in any district. (Ord. 940 § 1, Ex. A(part), 1992)
>
> 17.13.040 Control of dangerous and objectionable conditions.
>
> A. Noise. The maximum sound pressure level radiated by any use or facility at the points of measurement specified in Section 17.13.030, shall not exceed the computed noise level values specified in Table 3 (Table 4.4-6 of this EIR), after applying corrections, except that normal household appliances or equipment in use during the hours of seven a.m. to seven p.m. shall not be subject to these regulations. The sound pressure level shall be measured with a sound level meter and associated octave band analyzer meeting the American National Standards Institute's standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data. The maximum permissible sound pressure levels at the points of measurement specified in Section 17.13.030 of this chapter are shown below in Table 3 (Table 4.4-6 of this EIR).

Table 4.4-6
Maximum Permissible Sound Pressure Levels

Receiving Land Use Category	Time Period	Maximum Exterior Noise Level (dBA)
Single and Limited Multiple Family	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	60
Multiple family, Public Institutional and Neighborhood Commercial	10 p.m. to 7 a.m.	55
	7 a.m. to 10 p.m.	60
Medium and Heavy Commercial	10 p.m. to 7 a.m.	60
	7 a.m. to 10 p.m.	65
Light industrial	Anytime	70
Heavy industrial	Anytime	75

Notes: The following corrections are applicable (apply only one correction):
1. Daytime Operation Only (7am – 7 pm): +5 decibels
2. Noise Source Operates Less Than:
   20% of any one-hour period: +5 decibels
   5% of any one-hour period: +10 decibels
   1% of any one-hour period: +15 decibels
3. Noise of Impulsive Character (hammering, etc.): -5 decibels
4. Noise Rising or Falling in Pitch or Volume (hum, screech, etc.): -5 decibels

Source: City of Manteca 1992. Title 17, Zoning Ordinance. Chapter 17.13, Section 17.13.040.

B. Vibration. No vibration shall be produced which is transmitted through the ground and is discernible without the aid of instruments at the points of measurement specified in Section 17.13.030 of this chapter nor shall any vibration produced exceed 0.002g peak at up to fifty CPS (cycles per second) frequency (117.75 VdB, based on a reference value of 1 μ in/sec), measured at the point of measurement specified in Section 17.13.030 of this chapter using either seismic or electronic vibration measuring equipment. Vibrations occurring at higher than fifty cps frequency of a periodic vibration shall not induce accelerations exceeding .001g (111.74 VdB, based on a reference value of 1 μ in/sec). Single impulse periodic vibrations occurring at an average interval greater than five minutes shall not induce accelerations exceeding .01g (131.74 VdB, based on a reference value of 1 μ in/sec).

4.4.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Data included in Chapter 3, "Project Description," and obtained during on-site noise monitoring were used to determine potential locations of sensitive noise receptors and potential noise-generating land uses on the project site. Noise-sensitive land uses and major noise sources in the vicinity of the project area were identified based on existing documentation (e.g., equipment noise levels and attenuation rates) and site reconnaissance data.

To assess potential short-term construction noise impacts, sensitive receptors and their relative exposure (considering intervening building facades and distance) were identified. Construction noise generated by the proposed project is predicted using the Federal Transit Noise and Vibration Impact Assessment methodology for construction noise prediction (FTA 2006). Reference emission noise levels and usage factors are based on information contained in the *FHWA Roadway Construction Noise Model User's Guide* (FHWA 2006). Noise levels of specific construction equipment operated and resultant noise levels at sensitive receptor locations have been calculated.

With respect to traffic noise, EDAW conducted traffic noise modeling based on ADT traffic volumes obtained from the traffic analysis prepared by Fehr & Peers Associates, Inc. for this project, as discussed in Chapter 4, "Affected Environment, Environmental Consequences, and Mitigation Measures," Section 4.11, "Traffic and Circulation." The FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (FHWA 1978) is used to calculate traffic noise levels along affected roadways, based on the trip distribution estimates as discussed in Section 4.11, "Traffic and Circulation." The project's contribution to the existing traffic noise levels along area roadways is determined by comparing the predicted noise levels at a reference distance of 100 feet from the roadway centerline, with and without project-generated traffic for existing and cumulative conditions.

Potential long-term (operation-related) stationary source noise impacts were assessed based on existing documentation (e.g., equipment noise levels) and site reconnaissance data. This analysis also included an evaluation of the proposed noise-generating uses that could affect noise-sensitive receptors in the vicinity of the Project area.

To assess the land use compatibility of the proposed project with on-site noise levels, predicted traffic noise contours are used to determine if development of the proposed land uses would exceed the applicable noise criteria for those land uses.

Predicted noise levels were compared with applicable standards for determination of significance. Mitigation measures were developed for significant and potentially significant noise impacts.

Ground-borne vibration impacts were qualitatively assessed based on existing documentation (e.g., vibration levels produced by specific construction equipment operations) and the distance of sensitive receptors from the given source.

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines and applicable City of Manteca noise standards. For purposes of this analysis, the following applicable thresholds of significance were used to determine whether implementing the project would result in a significant noise impact:

- **Short-term construction noise impacts—**Construction noise impacts would be considered significant if construction noise levels would exceed the City of Manteca (Tables 4.4-4, 4.4-5, and 4.4-6) noise criteria or result in increased levels of annoyance or sleep disruption during noise-sensitive periods of the day. For purposes of this analysis, noise-sensitive periods of the day are considered to be between the hours of 7 p.m. and 7 a.m.

- **Long-term operational stationary source noise impacts—**Long-term stationary-source noise impacts would be considered significant if the project would result in noise levels that would exceed applicable noise criteria of the City of Manteca (Tables 4.4-4, 4.4-5, and 4.4-6).

- **Long-term increases in traffic noise—**Long-term increases in traffic noise would be considered significant if implementation of the project would result in a substantial increase in noise levels of 3 dBA CNEL, or greater.

- **Land use compatibility with projected noise levels—**Development of the project would have a significant impact if predicted noise levels at on-site receptors would exceed applicable noise criteria of the City of Manteca (Tables 4.4-4, 4.4-5, and 4.4-6).

- **Generation of Excessive Ground-Borne Vibration—**Short- and long-term vibration impacts would be significant if construction or operation of the proposed project would result in the exposure of sensitive receptors to or generate vibration levels that exceed Caltrans's recommended standards with respect to the prevention of structural building damage (0.2 and 0.08 in/sec PPV for normal and historical buildings, respectively) or FTA's maximum-acceptable-vibration standard with respect to human response (80 VdB for residential uses) at nearby existing or proposed vibration-sensitive land uses.

The project area is not located within the 60 dBA CNEL noise contour zones of any nearby airports or railways. Consequently, the impacts of aircraft or railroad noise are not addressed further in this DEIR.

IMPACT ANALYSIS

IMPACT 4.4-1 Short-Term Project-Generated Construction-Related Noise Levels. *Implementation of the proposed project would result in short-term construction activities associated with grading, construction, demolition of and roadway improvements. These construction activities could potentially expose sensitive receptors to noise levels in excess of the applicable noise standards and/or result in a noticeable increase in ambient noise levels. This impact would be potentially significant.*

Construction noise levels on the project site would fluctuate depending on the particular type, number, and duration of usage for the varying equipment. The effects of construction noise largely depends on the type of construction activities occurring on any given day, noise levels generated by those activities, distances to noise sensitive receptors, and the existing ambient noise environment in the receptor's vicinity. Construction generally occurs in several discrete stages, with each operation varying the equipment mix, and the associated noise characteristics. These stages alter the characteristics of the noise environment generated on the project site and its effects in the surrounding community for the duration of the construction process. Construction of the project is expected to begin in June 2009 in three phases and would be completed in approximately three to three and a half years. The project site is planned to be fully operational by 2013.

The site preparation phase typically generates the most substantial noise levels due to on-site equipment associated with grading, compacting, and excavation, which utilizes the noisiest construction equipment. Site preparation equipment includes: backhoes, bulldozers, loaders; excavation equipment such as, graders and scrapers; and compaction equipment. Erection of large structural elements and mechanical systems could require the use of a crane for placement and assembly tasks, which may also generate substantial noise levels. Although a detailed construction equipment list is not currently available, it is expected that the primary sources of noise would include backhoes, compressors, bulldozers, excavators, and other related equipment. Table 4.4-7 depicts the noise levels generated by various types of construction equipment.

To assess noise levels associated with the various equipment types and operations, construction equipment can be considered to operate in two modes, mobile and stationary. Mobile equipment sources move around a construction site performing tasks in a recurring manner (e.g., loaders, graders, dozers). Stationary equipment operates in a given location for an extended period of time to perform continuous or periodic operations. Thus, determining the location of stationary sources during specific phases, or the effective acoustical center of operations for mobile equipment during various phases of the construction process is necessary. Operational characteristics of heavy construction equipment are additionally typified by short periods of full power operation followed by extended periods of operation at lower power, idling, or powered off conditions.

Table 4.4-7
Construction Equipment Noise Emission Levels

Equipment Type	Typical Noise Level (dB) @ 50 feet
Air Compressor	78
Asphalt Paver	77
Backhoe	78
Compactor	83
Concrete Breaker	82
Concrete Pump	81
Concrete Saw	90
Crane, Mobile	81
Dozer	82
Front-end Loader	79
Generator	81
Grader	85
Hoe Ram Extension	90
Jack Hammer	89
Pneumatic Tools	85
Scraper	84
Trucks	74-81
Water Pump	81

Notes: dB = A-weighted decibels
*All equipment fitted with properly maintained and operational noise control device, per manufacturer specifications.
Source: BBN 1981, FTA 2006; Data Compiled by EDAW 2008.

As indicated in Table 4.4-7, operational noise levels for typical construction activities would generate noise levels ranging from 74 to 90 dB at a distance of 50 feet. Continuous combined noise levels generated by the simultaneous operation of the loudest pieces of equipment would result in noise levels of 93 dB at 50 feet. Accounting for the usage factor of individual pieces of equipment, topographical shielding and absorption effects, construction activities on the proposed project site are expected to result in hourly average noise levels of 88 dB L_{eq}, at a distance of 50 feet. Maximum noise levels generated by construction activities are not predicted to exceed 93 dB L_{max} at 50 feet.

The nearest off-site noise sensitive receptors adjacent to the project site are single family residential land uses located 50 feet east of, and across South Union Road (Phase 2) and rural residential uses 50 feet west of the project boundary (Phase 3), or approximately 150 feet east and 150 west feet from the acoustical center of the site. It should be noted that the single family residential uses to the east of the project site are shielded by a ten foot tall solid noise barrier. Noise from localized point sources (such as construction sites) typically decreases by 6 dB to 7.5 dB with each doubling of distance from source to receptor. Conservatively assuming an attenuation rate of 6 dB per doubling of distance, construction operations and related activities are predicted to generate exterior hourly noise levels of 78 dB L_{eq} at the nearest off-site sensitive receptor, when propagated from the acoustical center of construction operations.

Construction activities occurring between the hours of 7 a.m. and 7 p.m. are considered exempt by the City from the standards established in the City's noise ordinance (Hollander, pers. comm., 2008). As described in Chapter 3, "Project Description," construction activities are proposed to occur between the hours of 7 a.m. and 7 p.m. and would be consistent with the requirements of the City's noise ordinance. No construction activities would occur during the more noise-sensitive hours of the day (e.g., 7 p.m. to 7 a.m.); however, the ambient noise level at the rural residential uses would increase with construction operations at the project site. Therefore, this impact would remain **potentially significant**.

IMPACT 4.4-2 Long-Term Project-Generated Operation-Related Noise Levels from Traffic at Existing Noise-Sensitive Receptors. *Implementation of the proposed project could result in an increase of average daily vehicle trips in the proposed project area. The increased traffic volumes would result in a noticeable (3 dB or greater) increase in traffic noise along roadways in and within the vicinity of the proposed project area. This impact would be considered* ***less than significant.***

Long-term operation of the proposed project would result in an increase in ADT volumes on the local roadway network and, consequently, an increase in noise levels from traffic sources along affected segments. To examine the effect of project-generated traffic increases, traffic noise levels associated with the proposed project were calculated for roadway segments in the project study area using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise levels were modeled under existing and cumulative conditions, with and without the implementation of the proposed project. ADT volumes and the distribution thereof were obtained from the project traffic consultant, as discussed in Section 4.11, "Traffic and Circulation." Vehicle speeds and truck volumes on local area roadways were determined based on field observations and vehicle counts conducted by EDAW. Tables 4.4-8 and 4.4-9 summarize the modeled traffic noise levels at 100 feet from the centerline of affected roadway segments in the project area. Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Refer to Appendix D of this EIR for complete modeling inputs and results.

Table 4.4-8
Predicted Traffic Noise Levels, Existing Conditions

Roadway	Segment		L_{dn} at 100 Feet, dB			Significant Impact?
	From	To	No Project	Plus Project	Net Change	
SR 120	I-5	Yosemite Avenue	78.8	78.8	0.0	No
SR 120	Yosemite Avenue	Airport Way	78.7	78.8	0.1	No
SR 120	Airport Way	Union Road	78.6	78.7	0.1	No
SR 120	Union Road	Main Street	78.5	78.7	0.2	No
SR 120	Main Street	US - 99	78.2	78.3	0.1	No
Airport Way	Yosemite Avenue	Daniels Street	63.7	64.0	0.3	No
Airport Way	Daniels Street	State Route 120	64.3	64.6	0.3	No
Airport Way	State Route 120	Atherton Drive	61.8	61.8	0.0	No
Airport Way	Atherton Drive	Woodward Avenue	59.5	60.0	0.5	No
Airport Way	Woodward Avenue	Peach/McKinley Avenue	61.5	61.5	0.0	No
Union Road	Yosemite Avenue	Wawona Street	65.0	66.1	1.1	No
Union Road	Wawona Street	State Route 120	65.4	67.0	1.6	No
Union Road	State Route 120	Atherton Drive	60.6	67.3	6.8	No[1]
Union Road	Atherton Drive	Woodward Avenue	60.0	61.9	1.9	No
Union Road	Woodward Avenue	Peach/McKinley Avenue	58.9	59.4	0.5	No
Main Street	Mission Ridge Drive	State Route 120	65.3	65.7	0.4	No
Main Street	State Route 120	Atherton Drive	61.9	61.9	0.0	No
Main Street	Atherton Drive	Woodward Avenue	61.9	61.9	0.0	No
Main Street	Woodward Avenue	Sedan Avenue	60.3	60.3	0.0	No
Woodward Avenue	McKinley Avenue	Airport Way	56.8	57.3	0.5	No
Woodward Avenue	Airport Way	Oleander Road	55.4	57.3	1.9	No
Woodward Avenue	Oleander Road	Union Road	55.8	57.8	2.0	No
Woodward Avenue	Union Road	Tinnin Road	59.2	60.7	1.5	No
Woodward Avenue	Tinnin Road	Main Street	59.3	60.2	0.9	No
Woodward Avenue	Main Street	Van Ryn Avenue	61.3	61.9	0.6	No

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level

[1] Although there is an increase of more than 3 dB in traffic noise, there are not noise-sensitive receptors located along this segment of roadway; therefore there is not an impact.

*Traffic noise levels are predicted at a standard distance of 100 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: : Fehr & Peers, 2008; Data modeled by EDAW 2008

Table 4.4-9
Predicted Traffic Noise Levels, Cumulative (2025) Conditions

Roadway	Segment		L_{dn} at 100 Feet, dB			Significant Impact?
	From	To	No Project	Plus Project	Net Change	
SR 120	I-5	Yosemite Avenue	82.3	82.3	0.0	No
SR 120	Yosemite Avenue	Airport Way	82.2	82.3	0.1	No
SR 120	Airport Way	Union Road	82.2	82.3	0.1	No
SR 120	Union Road	Main Street	81.7	81.8	0.1	No
SR 120	Main Street	US - 99	81.1	81.2	0.1	No
Airport Way	Yosemite Avenue	Daniels Street	65.8	65.9	0.1	No
Airport Way	Daniels Street	State Route 120	65.4	65.7	0.3	No
Airport Way	State Route 120	Atherton Drive	67.9	68.0	0.1	No
Airport Way	Atherton Drive	Woodward Avenue	69.2	69.3	0.1	No
Airport Way	Woodward Avenue	Peach/McKinley Avenue	74.1	74.1	0.0	No
Union Road	Yosemite Avenue	Wawona Street	68.1	68.2	0.1	No
Union Road	Wawona Street	State Route 120	65.4	65.5	0.1	No
Union Road	State Route 120	Atherton Drive	67.0	67.5	0.5	No
Union Road	Atherton Drive	Woodward Avenue	67.9	68.5	0.6	No
Union Road	Woodward Avenue	Peach/McKinley Avenue	67.9	69.6	1.7	No
Main Street	Mission Ridge Drive	State Route 120	66.8	68.1	1.3	No
Main Street	State Route 120	Atherton Drive	66.2	66.9	0.7	No
Main Street	Atherton Drive	Woodward Avenue	68.5	68.6	0.1	No
Main Street	Woodward Avenue	Sedan Avenue	68.3	68.3	0.0	No
Woodward Avenue	McKinley Avenue	Airport Way	68.9	68.9	0.0	No
Woodward Avenue	Airport Way	Oleander Road	65.8	66.1	0.3	No
Woodward Avenue	Oleander Road	Union Road	67.2	67.4	0.2	No
Woodward Avenue	Union Road	Tinnin Road	67.2	67.6	0.4	No
Woodward Avenue	Tinnin Road	Main Street	66.8	67.4	0.6	No
Woodward Avenue	Main Street	Van Ryn Avenue	65.6	66.2	0.6	No
Atherton Drive	Airport Way	Union Road	63.9	64.3	0.4	No
Atherton Drive	Union Road	Main Street	65.2	65.4	0.2	No

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level
*Traffic noise levels are predicted at a standard distance of 100 feet from the roadway centerline and do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Source: : Fehr & Peers, 2008; Data modeled by EDAW 2008

Based on the modeling conducted, implementation of the proposed project in addition to existing conditions would result in traffic noise level increases ranging from +0.0 dB to +6.8 dB L_{dn}, compared to noise levels without the project. It should be noted that there are no noise-sensitive receptors located along this segment, nor will there be in the future. Currently, noise barriers 8 to 10 feet in height are located along Atherton Drive and Union Road to shield future traffic noise levels from sensitive receptors, therefore mitigating significant increases in traffic noise along these roadways. Implementation of the proposed project in addition to cumulative (2025) conditions would result in a net change in traffic noise levels ranging from +0.0 dB to +1.7 dB L_{dn}, compared to

noise levels without the project. Therefore, long-term noise levels from project-generated traffic sources would not result in substantial permanent increase in ambient noise levels (3 dB or greater) under existing and cumulative 2025 conditions. As a result, this impact would be **less than significant**.

IMPACT 4.4-3 Long-Term Project-Generated Operation-Related Noise Levels from Stationary Sources at Existing Noise-Sensitive Receptors. *Implementation of the proposed project would result in increases in stationary source noise associated with the proposed use. These stationary noise sources could potentially exceed the City's noise standards (hourly and maximum) and result in a noticeable increase in ambient noise levels. Therefore, this impact is considered* ***potentially significant****.*

Mechanical HVAC Equipment

HVAC equipment could be a primary noise source associated with the project site for sensitive receptors within close proximity of individual HVAC units. HVAC equipment is often mounted on rooftops, located on the ground, or located within mechanical rooms. The noise sources could take the form of fans, pumps, air compressors, chillers, or cooling towers. Packaged rooftop units contain all necessary mechanical equipment such as fans, pumps, condenser, and compressors within a single enclosure. Noise levels generated by packaged HVAC systems can be modeled in relation to the required cooling capacity for the unit, measured in tons of refrigeration (BBN 1981). A detailed HVAC plan was not available at the time of the analysis, however, based on the square footage of proposed buildings, cooling-capacity, and respective locations of the packaged systems; noise levels for mechanical HVAC systems are predicted to range between 48.2 dB to 61.5 dB L_{eq} at the nearest noise sensitive land uses. Table 4.4-10 shows the proposed individual buildings, square footage, cooling capacity required, distance to nearest noise sensitive receptor and the resulting noise level predicted at the nearest residential property line.

As a result, HVAC equipment would potentially exceed the City of Manteca daytime and nighttime noise level performance standards at the receptor's property line of 50 dB L_{eq} and 45 dB L_{eq}, respectively, for noise-sensitive uses affected by stationary noise sources (Table 4.4-5), and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Table 4.4-10
Predicted HVAC Noise Levels at the Nearest Residential Property Line

Phase	Building	Square Footage	Distance to Residential Property Line (feet)	Cooling Capacity Required	Sound Power Level (dB)	Sound Pressure Level (dBA L_{eq})
1	N-P4	6,000	220	7.2	97.3	52.5
1	N-P3	8,200	270	9.84	98.9	52.3
2	S-M3	25,000	120	30	104.7	65.2
2	S-A1	65,000	140	78	109.7	68.8
2	S-M2	23,500	165	28.2	104.4	62.1
3	S-M4	20,000	95	24	103.6	66.0
3	S-P4	5,000	90	6	96.3	59.3
3	S-S4	13,500	95	16.2	101.5	64.0

Notes: dB = decibel; dBA = A-weighted decibel; L_{eq} = equivalent hourly average noise level
Source: BBN 1981, data modeled by EDAW in 2008

Parking Lot Activities

The proposed project would accommodate up to 2,056 parking stalls. A portion of project parking stalls would be located directly adjacent rural residential and single family residential uses. Previously conducted reference noise level measurements of parking lot activities indicate that average sound exposure levels (SEL) associated with a single parking event is 71 dB SEL at distance of 50 feet. Activities making up a single parking event included vehicle arrival, limited idling, occupants exiting the vehicle, door closures, conversations among passengers, occupants entering the vehicle, startup, and departure of the vehicle. Assuming peak hour parking operations, one vehicle arriving and departing each available parking stall, a standard attenuation rate of 6 dB/DD, the distance to the nearest noise-sensitive receptor, and the number of parking stalls sensitive receptors are expected to be exposed to, noise levels from parking lot activities have been predicted and are shown in Table 4.4-11.

Table 4.4-11
Predicted Parking Lot Noise Levels at the Nearest Residential Property Line

Phase	Number of Stalls	Distance to Nearest Noise-Sensitive Receptor (feet)	Resulting Noise Level (dBA L_{eq})
1 - Lots 1 and 2	185	250	47.1
2 - Lot 8	63	150	46.9
3 - Lot 3	61	125	48.3

Notes: sqft = square footage; dB = A-weighted decibels; L_{eq} = the equivalent hourly average noise level
Data modeled by EDAW 2008

The dominant noise source in the immediate vicinity of the proposed parking areas and the nearest noise sensitive receptor would be traffic noise along Atherton Drive. As shown in Table 4.4-11, future traffic noise emanating from Atherton Drive would be 64.5 dB L_{dn}, which is 10 dB above the noise levels predicted for parking lot noise. Furthermore, it is assumed that future development of residential uses at the parcel to the west of the project site would require noise barriers along residential property lines in order to shield future outdoor activity areas from Atherton Drive traffic noise. As a result, parking lot operations would not exceed the City of Manteca noise level performance standards at the nearest noise sensitive receptor's property line affected by nontransportation noise, nor result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Loading Docks

Noise sources associated with loading dock activity include trucks idling, on-site truck circulation, trailer-mounted refrigeration units, pallets dropping, and the operation of forklifts. Previously conducted noise monitoring at loading docks indicates that typical hourly average noise levels range from 55 to 60 dB L_{eq} and from 80 to 84 dB L_{max} at a distance of 50 feet. The nearest noise-sensitive receptor property line is located approximately 50 feet from the project property line. As a result, loading dock activity would exceed the City of Manteca noise level performance standards at the nearest noise sensitive receptor's property line affected by nontransportation noise, and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Summary of Stationary-Source Noise

Stationary-source noise levels associated with the project site could result in noise levels that would exceed the City's maximum allowable noise standards, resulting in a significant impact. In addition, increases in single-event noise levels, such as backup alarms from material delivery trucks and forklift operations at commercial land uses, could result in increased levels of disturbance and sleep disruption for occupants of nearby residential dwellings,

particularly during evening, nighttime, and early morning hours. Mechanical HVAC, and loading dock activity noise sources could exceed the daytime and nighttime nontransportation noise standards of 50 dB and 45 L_{eq}, respectively, at the nearest noise sensitive receptor's property line adjacent to the project site. As a result, this impact is considered **significant**.

IMPACT 4.4-4 Groundborne Noise and Vibration Levels Caused by Construction Activities at Sensitive Receptors. *Implementation of the proposed project could result in exposing existing sensitive noise-receptors to groundborne noise and vibration levels that exceed the FTA and Caltrans guidelines. These groundborne noise and vibration levels could result in annoyance or architectural/structural damage. This impact would be considered* ***less than significant****.*

Construction activities have the potential to result in varying degrees of temporary ground vibration depending on the specific construction equipment used and operations involved. Ground vibration levels associated with various types of construction equipment are summarized in Table 4.4-12. Based on the representative vibration levels identified for various construction equipment types, sensitive receptors located near construction activities could be exposed to groundborne vibration levels exceeding the recommended FTA and Caltrans guidelines of 80 VdB and 0.2 in/sec PPV, respectively.

Table 4.4-12
Representative Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)[1]	Approximate L_v (VdB) at 25 feet[2]
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

[1] Where PPV is the peak particle velocity

[2] Where Lv is the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.

Source: FTA 2006

The nearest groundborne noise and vibration-sensitive receptors (existing rural residential uses) are located south and west of the project site at 100 feet from vibration-induced construction activities. Groundborne noise and vibration levels were predicted based on the VdB and PPV reference vibration levels in Table 4.4-12. Predicted groundborne noise and vibration levels would be 69 VdB and 0.011 in/sec PPV. As a result, vibration-induced construction activities would not exceed recommended Caltrans standard of 0.2 in/sec PPV regarding the prevention of structural damage for normal buildings or FTA's maximum acceptable vibration standard of 78 VdB regarding human response (i.e., annoyance) at nearby vibration-sensitive land uses (i.e., school), nor expose persons to or generate excessive groundborne vibration or groundborne noise levels. Therefore, this impact is considered **less than significant**.

4.4.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.4-2: Long-Term Project-Generated Operation-Related Noise Levels from Traffic at Existing Noise-Sensitive Receptors.

Impact 4.4-4: Groundborne Noise and Vibration Levels Caused by Construction Activities at Sensitive Receptors.

The following mitigation is recommended for the potentially significant impacts.

Mitigation Measure 4.4-1: Short-Term Project-Generated Construction-Related Noise Levels.

The applicant shall implement the following measures during construction activities:

- Construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools shall be shrouded or shielded, and all intake and exhaust ports on power equipment shall be muffled or shielded.

- Construction operations and related activities associated with the proposed project shall comply with the operational hours outlined in the Manteca Municipal Code noise standards: construction operations shall be limited to between the hours of seven a.m. and seven p.m.

- Construction equipment shall not idle for extended periods of time near noise-sensitive receptors.

- Fixed/stationary equipment (e.g., generators, compressors, rock crushers, cement mixers) shall be located as far as possible from noise-sensitive receptors. Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on powered construction equipment.

Mitigation Measure 4.4-3: Long-Term Project-Generated Operation-Related Noise Levels from Stationary Sources at Existing Noise-Sensitive Receptors.

The following mitigation measures shall mitigate noise sources associated with the project at the nearest noise-sensitive property line:

- Phase II and Phase III mechanical equipment (e.g., air conditioning and ventilation systems, pump stations, etc.) for large box store uses that are located adjacent to noise-sensitive receptor property lines shall be located in mechanical equipment rooms; or

- The project applicant shall include rooftop parapet noise barriers for each box store of Phase II (S-S1, S-M2, S-A1, SM-3) and Phase III (S-M4, S-S4, S-P4) located adjacent to noise-sensitive land uses. The rooftop parapets shall be four to six feet tall and be required to break line of sight from the source to the residential receptor. Specifically, parapets shall be included at facades adjacent to noise-sensitive uses. Parapets shall be located along the southern and western rooflines of buildings in Phase II and Phase III; and

- Phase II and Phase III loading dock areas shall be shielded by a solid noise barrier. The barrier shall be eight to ten feet tall (as determined based on final grading elevations) and would be required to break line of sight from the source (e.g., heavy truck exhaust stacks and refrigeration units) to the nearest off site noise-sensitive receptor. The solid noise barrier shall be located along the southern and western project boundaries for Phase II loading docks, and along the western boundary for Phase III loading docks.

- The above mitigation measures shall be confirmed by a qualified acoustical consultant once complete detail of HVAC project components are made available.

4.4.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure 4.4-1 would reduce the level of impact from construction noise where feasible. Adhering to the City of Manteca noise standards and incorporating Mitigation Measure 4.4-1 would reduce the impact of construction noise to the extent feasible; however, construction noise would remain potentially significant and unavoidable. No other feasible mitigation is available. Implementation of Mitigation Measure 4.4-3, along with compliance with the City's general plan noise policies, would reduce stationary-source noise impacts. However, noise levels at some off-site noise-sensitive land uses could potentially exceed local noise criteria, even with implementation of all feasible mitigation measures. Single-event noise levels at residential uses located adjacent to areas designated for commercial loading dock areas would be of particular concern because of intermittent noise typically associated with truck deliveries and the loading/unloading of materials. This impact would be considered significant and unavoidable.

4.5 BIOLOGICAL RESOURCES

This section addresses biological resources present in the project area and evaluates the potential impacts on these resources that could result from implementation of the project. EDAW biologists reviewed existing documents that address biological resources in the project vicinity, including the *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan* (SJMSCP) (San Joaquin County 2000), and conducted searches of the California Natural Diversity Database (CNDDB) (2007) and California Native Plant Society (CNPS) database (2007) for specific information on documented observations of special-status species in the project vicinity. An EDAW biologist conducted a reconnaissance-level field survey of the project area on October 30, 2007. The purpose of this survey was to characterize general biological resources, determine the potential for sensitive biological resources to occur in the project area, and assess potential for the proposed project to affect such resources.

4.5.1 ENVIRONMENTAL SETTING

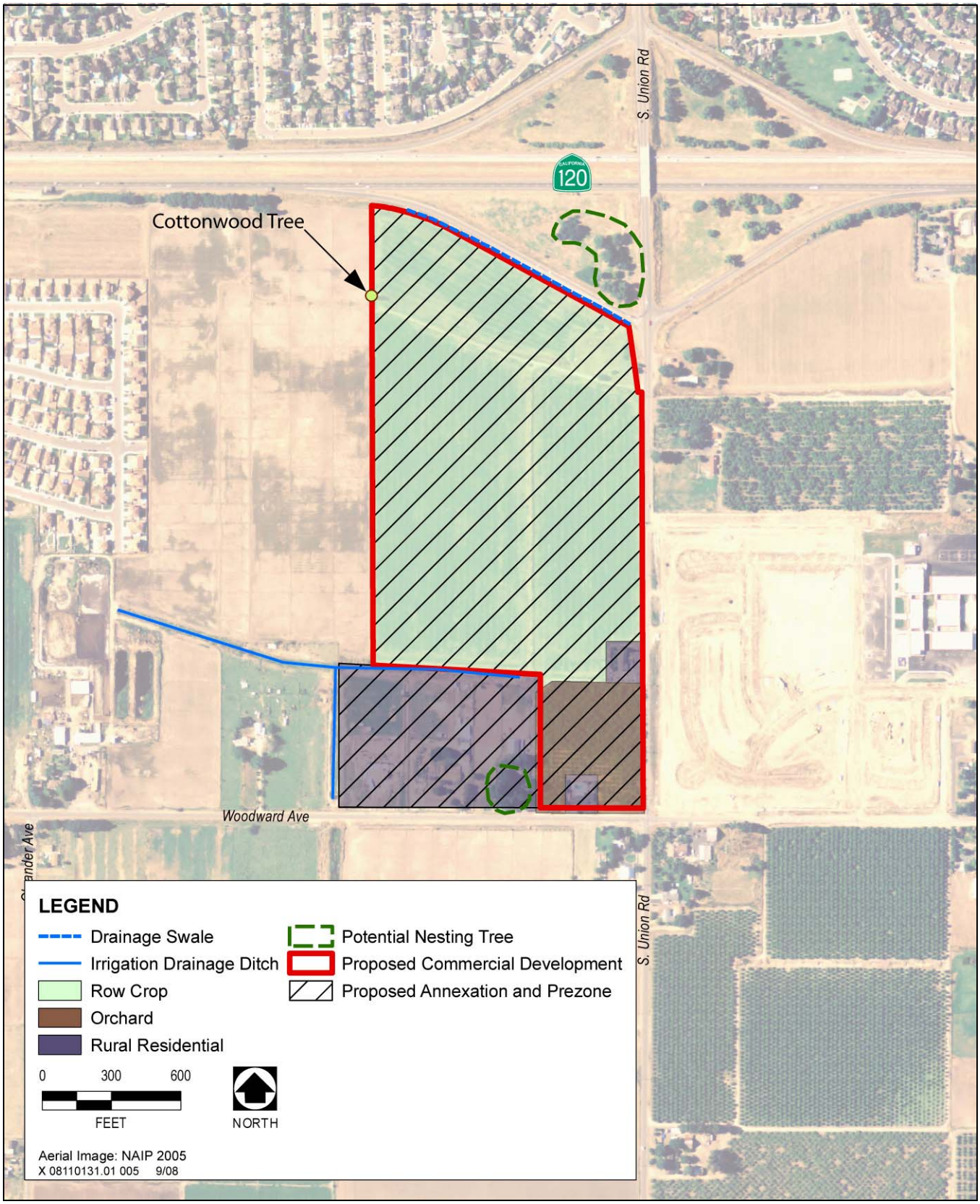
VEGETATION

The 46.6-acre portion of the project site proposed for commercial retail and Atherton Drive is currently used for growing field crops; the remaining 16.5 acres of the site consist of orchard and rural residential development (Exhibit 4.5-1). One large cottonwood tree (*Populus fremontii*) is present along the western border of the site; several black locust (*Robinia pseudoacacia*), prune trees (*Prunus* spp.), and cultivated grape shrubs (*Vitis* sp.) occur in the northeast corner of the site. The margins of the agricultural fields are vegetated with ruderal weedy species including tall fescue (*Festuca arundinacea*), Bermuda grass (*Cynodon dactylon*), cocklebur (*Xanthium strumarium*), puncture vine (*Tribulus terrestris*), common sunflower (*Helianthus annuus*), and goosefoot (*Chenopodium* sp.). A vegetated irrigation drainage ditch, approximately 15 feet wide, is located along the southwestern border. Although not confirmed, it is presumed that surface water is present in the drainage ditch for most of the year. Sparse weedy vegetation similar to that along the margins of the agricultural fields is present on the banks of the drainage ditch. The freshwater marsh habitat within the bottom of the drainage ditch supports hydrophilic and emergent vegetation including cattails (*Typha* sp.), cheeseweed (*Malva parviflora*), and lady's thumb (*Polygonum persicaria*).

Mature cottonwoods, willows (*Salix* sp.), and large ornamental trees are located north of the site within the median between State Route 120 and the eastbound South Union Road off-ramp and on the residential parcels in the southern portion of the site. These ornamental trees provide potential nesting sites for raptors.

WILDLIFE

Wildlife diversity on the project site is typical of agricultural regions in San Joaquin County. Avian species observed or expected to occur in the agricultural fields include great egret (*Ardea alba*), killdeer (*Charadrius vociferous*), yellow-billed magpie (*Pica nuttalli*), American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), western kingbird (*Tyrannus verticalis*), white-crowned sparrow (*Zonotrichia leucophrys*), rock pigeon (*Columba livia*), and red-winged blackbird (*Agelaius phoeniceus*). Raptors are expected to frequent the project area because the agricultural fields provide excellent foraging habitat and mature cottonwood trees, willows, and other mature ornamental and nonnative trees next to the site provide suitable nesting habitat. Raptors expected to occur on the project site include Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), northern harrier (*Circus cyanus*), and white-tailed kite (*Elanus leucurus*). Mammals expected on the project site include opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), California ground squirrel (*Spermophilus beechyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), and black-tailed jackrabbit (*Lepus californicus*).



Source: San Joaquin County 1999, NAIP 2005, EDAW 2008

Habitat Map **Exhibit 4.5-1**

The irrigation drainage ditch provides marginal cover for wildlife species typically associated with emergent marsh habitat. A great egret was observed in the drainage ditch during the October 2007 field survey. The tall nonnative weedy vegetation and Himalayan blackberry along the banks and the mixture of short emergent vegetation and tall, dense patches of tules and cattails along the channel bottom provide cover and food resources for wildlife. Red-winged blackbird, Brewer's blackbird, and barn swallow (*Hirundo rustica*) were observed in and next to the southern irrigation ditch during the October 2007 field survey. Additional species expected to occur in the drainage ditch include crayfish (*Pacifastacus* sp.), pacific tree frog (*Hyla regilla*), and bullfrog (*Rana catesbeiana*).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources include special-status species and sensitive natural habitats as identified by the California Department of Fish and Game (DFG), CNPS, and U.S. Fish and Wildlife Service (USFWS). Sensitive biological resources for this project also include those afforded protection under the *City of Manteca General Plan 2023* (City General Plan) or by the SJMSCP.

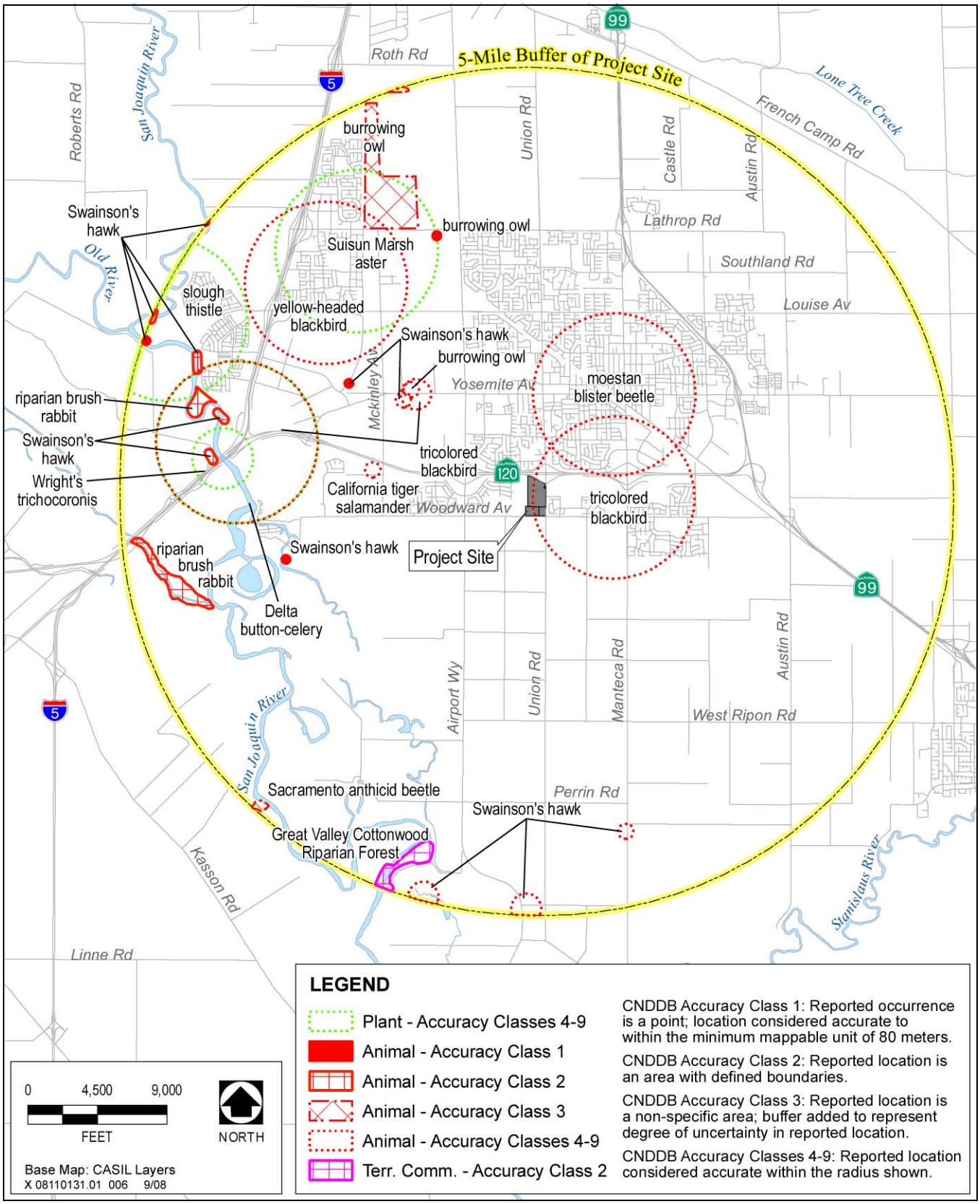
Special-Status Species

Special-status species include plants and animals in the following categories:

- species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA);
- species considered as candidates for listing as threatened or endangered under ESA or CESA;
- wildlife species identified by DFG as California species of special concern;
- animals fully protected in California under the California Fish and Game Code;
- plants listed as endangered or rare under the California Native Plant Protection Act;
- plants on CNPS List 1B (plants rare, threatened, or endangered in California and elsewhere) or List 2 (plants rare, threatened, or endangered in California but more common elsewhere) (The CNPS lists are used by both DFG and USFWS in their consideration of formal species protection under ESA or CESA.); and
- plants and animals covered under the SJMSCP.

Recent and historical reports of special-status species near the project site were identified through a search of the CNDDB (CNDDB 2007) and the CNPS inventory (CNPS 2007). The CNDDB is a statewide inventory managed by DFG, which is continually updated with the locations and condition of the state's rare and declining species and habitats. Although the CNDDB is a reliable tool for site-specific information on sensitive biological resources, note that it contains only those records that have been submitted to DFG and is not always up to date or comprehensive.

A CNDDB and CNPS database search was conducted for the Manteca, Lathrop, Vernalis, and Ripon 7.5-minute U.S. Geologic Survey quadrangles (Appendix E). The location of special-status species that have been observed within 5 miles of the project are provided in Exhibit 4.5-2. Table 4.5-1 lists the special-status species potentially occurring in the project area, based on a review of the CNDDB search, the CNPS inventory, and the reconnaissance-level survey. Additional species have been documented near the project site, but they are not addressed because the project area is outside of their normal range, they are presumed extirpated from the project vicinity, and/or they are restricted to habitats that are not present on-site (e.g., vernal pools, riparian, elderberry shrubs, alkali soils).



Source: CNDDB 2008, City of Manteca 2006

CNDDB Occurrences **Exhibit 4.5-2**

Table 4.5-1
Special-Status Species with Potential to Occur on the Project Site

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence
Plants				
Delta tule pea	*Lathyrus jepsonii jepsonii*	CNPS: 1B SJMSCP: covered	Brackish and freshwater marshes; blooms May–September	Could occur; potentially suitable habitat present in irrigation drainage ditch
Rose mallow	*Hibiscus lasiocarpus*	CNPS: 2	Freshwater marshes and swamps; blooms June–September	Could occur; potentially suitable habitat present in irrigation drainage ditch
Sanford's arrowhead	*Sagittaria sanfordii*	CNPS: 1B SJMSCP: covered	Shallow freshwater marshes and swamps; blooms May–October	Could occur; potentially suitable habitat present in irrigation drainage ditch
Slough thistle	*Cirsium crassicaule*	CNPS: 1B SJMSCP: covered	Freshwater marshes, sloughs, and slow-moving water; blooms May–August	Could occur; potentially suitable habitat present in irrigation drainage ditch
Wright's trichocoronis	*Trichocoronis wrightii* var. *wrightii*	CNPS: 2	Meadows, seeps, marshes, swamps, riparian scrub, and vernal pools; blooms May–September	Could occur; potentially suitable habitat present in irrigation drainage ditch
Amphibians				
California tiger salamander	*Ambystoma californiense*	Federal: threatened CA: species of special concern	Vernal pools, seasonal wetlands, and ponds in upland with burrows and other underground refuge	Unlikely to occur; low quality aquatic habitat is present in drainage ditch, upland habitat lacks burrows; however, extant population exists less than 2 miles west
Reptiles				
Giant garter snake	*Thamnophis gigas*	Federal: threatened SJMSCP: covered	Ponds, stream, sloughs, and ditches	Unlikely to occur; low-quality aquatic habitat is present in irrigation drainage ditch, and upland habitat is lacking; nearest known occupied habitat is more than 10 miles north
Birds				
Burrowing owl	*Athene cunicularia*	Federal: species of special concern CA: species of special concern SJMSCP: covered	Grasslands and agricultural fields with low-growing vegetation and the presence of small rodent burrows	Could occur; field recently disked, suitable foraging habitat present, no burrows observed but could become established in the future
Loggerhead shrike	*Lanius ludovidianus*	CA: species of special concern SJMSCP: covered	Shrubs and small trees for nesting, grasslands for foraging	Could occur; suitable foraging and nesting habitat present
Northern harrier	*Circus cyaneus*	CA: species of special concern	Grasslands and freshwater marsh	Likely to occur; observed on an adjacent project site during a July 2005 EDAW field survey; suitable foraging and nesting habitat is present

Table 4.5-1
Special-Status Species with Potential to Occur on the Project Site

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence
Swainson's hawk	*Buteo swainsoni*	Federal: species of special concern CA: threatened SJMSCP: covered	Nest in riparian forest and scattered trees; forage in grasslands and agricultural fields	Likely to occur; suitable foraging and nesting habitat is present, observed on an adjacent project site during a July 2005 EDAW field survey
Tricolored blackbird	*Agelaius tricolor*	CA: species of special concern SJMSCP: covered	Freshwater marsh with dense cattails and tules, riparian scrub, other dense shrubs and herbs for nesting, and grasslands and agricultural fields for foraging	Unlikely to occur; potentially suitable foraging habitat is present and limited marginal nesting habitat is present within the irrigation drainage ditch; nesting colonies have not been documented in the vicinity since mid 1970s
White-tailed kite	*Elanus leucurus*	Federal: species of special concern CA: fully protected	Forage in grasslands and agricultural fields; nest in isolated trees or small woodland patches	Could occur; suitable foraging and nesting habitat is present

Notes: CA = California; CNPS = California Native Plant Society; SJMSCP = San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

California Native Plant Society Listing Categories:

1B Plants considered rare, threatened, or endangered in California and elsewhere

2 Plants considered rare, threatened, or endangered in California but more common elsewhere

Sources: CNDDB 2007, CNPS 2007

Special-Status Plants

Eight special-status plant species were evaluated for their potential to occur in the project area. Five of the eight species were determined to have potential to occur in the project area: slough thistle, rose mallow, Sandford's arrowhead, Delta tule pea, and Wright's trichocoronis. The regulatory status and habitat association are summarized for each species in Table 4.5-1. All of these species occur in freshwater marsh habitats. Potentially suitable habitat within the project area is provided by the freshwater marsh habitat in the irrigation drainage ditch on the southern boundary of the project area. In general, the aboveground portion of the irrigation drainage ditch provides low-quality habitat but it could support these special-status plants.

Special-Status Wildlife

California Tiger Salamander

The California tiger salamander is federally listed as threatened and is a DFG species of special concern. Breeding habitat for California tiger salamander includes vernal pools and seasonal and perennial ponds. After adults breed and young are adequately developed, tiger salamanders retreat underground in surrounding upland areas. California tiger salamanders spend the majority of their life cycle underground within rodent burrows (especially ground squirrel burrows) although individuals have also been found under surface objects such as rocks and logs. Studies have found that average use of upland by California tiger salamander falls within 950 feet of aquatic habitat, but adults have been observed up to 1.3 miles from breeding ponds. Within the project area, one population of California tiger salamander is known to occur less than 2 miles from the project site. Breeding habitat within the project site is limited to low-quality habitat within the irrigation drainage ditch at the southern end of the site; burrows were not observed within the upland habitat and the routine disking/agricultural practices preclude this species from using the site. Because of the lack of suitable breeding or upland habitat on-site, and

distance from and barriers between the occupied habitat and the project site, California tiger salamander is unlikely to occur within the project site.

Giant Garter Snake

Giant garter snake inhabits a variety of aquatic habitats, such as agricultural canals, marshes, sloughs, and ponds. The species also requires adjacent upland habitat for basking and rodent burrows for wintering sites, which must provide sufficient cover and be at high enough elevations to function as refuges from floodwaters during the snake's inactive season. According to the SJMSCP, known occupied giant garter snake habitat is limited to four sites in San Joaquin County (San Joaquin County 2000); the nearest of these, Rio Blanco, is nearly 20 miles northwest of the project area. CNDDB records include additional occurrences; but none within 10 miles of the project site. The freshwater marsh habitat within the irrigation drainage ditch on-site provides low-quality habitat for giant garter snake, and very little potential upland habitat is present. Because of the marginal habitat quality and distance from occupied habitat, giant garter snake is unlikely to occur in the project area.

Swainson's Hawk

Swainson's hawk typically nests in riparian habitats or isolated trees bordered by suitable foraging habitat (i.e., grasslands and agricultural fields). Agricultural fields provide important foraging habitat for Swainson's hawk. Alfalfa, fallow fields, dry and irrigated pastures, and other low-growing row crops are preferred foraging habitats. Swainson's hawk could nest in the large mature trees located on and adjacent to the project site. The agricultural fields on the project site provide potential Swainson's hawk foraging habitat. A Swainson's hawk was observed flying near the project site during a July 2005 reconnaissance-level field survey of the adjacent property west of the project site. Therefore, this species is likely to forage on the site and could nest in trees on and adjacent to the site.

Other Raptors

Raptors are protected under Section 3503.5 of the California Fish and Game Code, which prohibits take or destruction of raptors, including their nests and eggs. Special-status and common raptors that occur or could occur on the project site include burrowing owl, white-tailed kite, northern harrier, red-tailed hawk, and American kestrel. Large trees located on and adjacent to the project site provide suitable nesting habitat for raptors. Agricultural fields and ruderal areas provide suitable foraging habitat and could support nesting habitat for northern harrier and burrowing owl. Red-tailed hawk and American kestrel were observed foraging on the project site during the October 2007 reconnaissance-level field survey. Northern harrier was observed during a July 2005 reconnaissance-level field survey of the adjacent property west of the project site. Because no potential burrowing owl burrows were observed during the EDAW survey this species is unlikely to occur on-site; however, suitable conditions could occur if ground squirrels become established in the area.

Tricolored Blackbird

Tricolored blackbird is a California species of special concern. Tricolored blackbird is a colonial nesting bird that nests in emergent or riparian vegetation, or tall vegetation supporting spines or thorns, and primarily forages in grasslands, pastures, and agricultural fields. The irrigation drainage ditch on the project site supports emergent wetland and riparian vegetation; however, the limited vegetation associated with the drainage ditch lacks the structure that characterizes typical tricolored blackbird nesting habitat. In addition, no nesting records have been documented regarding the project vicinity since 1991 (CNDDB 2007). The agricultural fields provide potentially suitable foraging habitat for tricolored blackbird, but given the lack of recent nesting colonies nearby and limited marginal nesting habitat on or next to the site, this species is unlikely to occur in the area.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies; are addressed in regional and local plans, policies, and ordinances; or are afforded specific consideration through CEQA, Section 1600 of the California Fish and Game Code, and/or Section 404 of the Clean Water Act (CWA). The freshwater marsh habitat within the aboveground portion of the irrigation drainage ditch on the project site could be considered sensitive habitat by regulatory agencies. The irrigation ditches may qualify as waters of the United States, which are under the jurisdiction of the U.S. Army Corps of Engineers (USACE). No trees on-site are large enough to be considered heritage trees and eligible for protection under Sections 17.61.030 of the City of Manteca (City) Municipal Code. Existing trees on the site with a diameter at breast height of 6 inches or more are eligible for protection under Sections 17.19.060 and 12.08.07 of the City Municipal Code.

4.5.2 REGULATORY SETTING

Biological resources in California are protected and/or regulated by a variety of federal and state laws and policies. In addition, in many parts of California, a project applicant may participate in the many local or regional habitat and species conservation planning efforts available. Key regulatory and conservation planning issues applicable to the project are discussed below.

CLEAN WATER ACT

Section 404 of the CWA requires that an applicant obtain a permit before conducting any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Many surface waters and wetlands in California meet the criteria for waters of the United States, including intermittent streams and seasonal lakes and wetlands. Pursuant to Section 404 of the CWA, USACE regulates and issues permits for activities that involve the discharge of dredged or fill materials into waters of the United States.

Pursuant to Section 401 of CWA, projects that apply for a USACE permit for discharge of dredge or fill material must obtain a certificate from the appropriate state agency stating that the intended dredge or fill activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated to the relevant regional water quality control board (RWQCB).

PORTER-COLOGNE WATER QUALITY CONTROL ACT

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under jurisdiction of the RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters of the state must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification under Section 401 of the CWA.

FEDERAL ENDANGERED SPECIES ACT

USFWS has authority over projects that may affect the continued existence of a federally listed (threatened or endangered) species. Section 9 of ESA prohibits "take" of federally listed species. Take is defined under ESA, in part, as killing, harming, or harassing. Under federal regulations, take is further defined to include habitat modification or degradation where it actually results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 7 of ESA outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Critical habitat identifies specific areas that have the physical and biological features that are essential to the conservation of a listed species and that may require special management considerations or protection. Section 7(a)(2) requires federal agencies to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an incidental take permit under Section 10(a) of ESA. That section allows USFWS to permit the incidental take of listed species if such take is accompanied by a habitat conservation plan that includes components to minimize and mitigate impacts associated with the take.

CALIFORNIA ENDANGERED SPECIES ACT

In accordance with CESA and Section 2081 of the California Fish and Game Code, a permit from DFG is required for projects that could result in take of a species listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include "harm" or "harass," as the federal ESA does. As a result, the threshold for take under CESA is higher than that under ESA.

SECTION 1600 OF THE CALIFORNIA FISH AND GAME CODE—STREAMBED ALTERATIONS

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports fish or wildlife resources is subject to regulation by DFG, pursuant to Section 1600 of the California Fish and Game Code. Section 1600 states that it is unlawful for any governmental agency, including state, local, or any public utility, to substantially divert or obstruct the natural flow or substantially change (1) the bed, channel, or bank of any river, stream, or lake, (2) use any material from the bed, bank, or channel of any river, stream, or lake, or deposit or dispose of debris, wastes, or (3) other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake without first notifying DFG of such activity. The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports wildlife, fish, or other aquatic life. This includes watercourses having a surface or subsurface flow that support or have supported riparian vegetation. DFG's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

CALIFORNIA FISH AND GAME CODE SECTIONS 3503–3503.5—PROTECTION OF BIRD NESTS AND RAPTORS

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, falcons), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction.

SAN JOAQUIN COUNTY MULTI-SPECIES HABITAT CONSERVATION AND OPEN SPACE PLAN

The SJMSCP provides a strategy for balancing the desires to conserve open space, maintaining the agricultural economy, and allowing development in San Joaquin County. It was developed to avoid, minimize, and mitigate impacts on plant and wildlife habitat projected to occur in San Joaquin County between 2001 and 2051, resulting from the anticipated conversion of as much as 109,300 acres of open space land to uses other than open space uses (San Joaquin County 2000). Ninety-seven species are covered by the SJMSCP, which is intended to provide comprehensive mitigation, in accordance with local, state, and federal regulations, for impacts on these species from SJMSCP-permitted activities. USFWS and DFG participated in development of the SJMSCP, approved the mitigation, and agreed to issue incidental take permits for species and activities covered by the SJMSCP. Therefore, participation in the SJMSCP confers authorization for activities that result in (or may result in) incidental take of covered state-listed or federally listed species, as well as other covered but unlisted sensitive species that may otherwise require a federal or state incidental take authorization.

The approach of the SJMSCP is to minimize the potential for take through implementation of take avoidance and minimization measures and compensation for incidental take and habitat conversion through payment of fees (or in-lieu land dedication) for conversion of open space lands. These fees shall be used to preserve and create natural habitats to be managed in perpetuity through the establishment of habitat preserves.

Participation in the SJMSCP is voluntary for local jurisdictions and project proponents. The City of Manteca adopted the SJMSCP on February 5, 2001, and has signed the implementation agreement. As a result, a Section 10(a)(1)(B) permit was issued by USFWS to the City of Manteca. This Section 10 permit also constitutes a special purpose permit for species covered by the federal Migratory Bird Treaty Act. A Section 2081 permit was also issued by DFG to the City of Manteca. As a result of the City of Manteca's participation in the SJMSCP and issuance of these permits, project proponents within the City of Manteca's jurisdiction have the opportunity to seek coverage under the SJMSCP.

The project applicants are committed to obtaining coverage under the SJMSCP to mitigate for project impacts and obtain incidental take authorization for SJMSCP-covered species under the City of Manteca's Section 10(a) and Section 2081 permits. The Section 10(a) permit also serves as a special-purpose permit for the incidental take of those species that are also covered under the Migratory Bird Treaty Act. Coverage under the SJMSCP would fully mitigate all impacts on special-status wildlife species addressed in this section. Impacts on sensitive habitats (e.g., waters of the United States) and protected trees are not covered by the SJMCSP.

Compensation for significant impacts on all SJMSCP-covered species would be accomplished through payment of development fees for conversion of open space lands that may provide habitat for these species. These fees would be used to preserve and/or create habitat in preserves to be managed in perpetuity. Development fees would be paid to the San Joaquin Council of Governments (SJCOG) in the amount specified by SJCOG, which administers the SJMCSP. Development fees for the SJMSCP are continually being revised, therefore a specified amount cannot be provided at this time. In addition, incidental take avoidance and minimization measures for species that could be significantly affected as a result of the project would be implemented, as determined by the SJCOG, and in accordance with requirements of the SJMSCP.

CITY OF MANTECA GENERAL PLAN

The following Biological Resources policies, identified in the Resource Conservation Element of the City General Plan (City of Manteca 2003a), are relevant to this project:

- **Policy RC-P-31:** Minimize impact of new development on native vegetation and wildlife.
- **Policy RC-P-33:** Discourage the premature removal of orchard trees in advance of development, and discourage the removal of other existing healthy mature trees, both native and introduced.

- **Policy RC-P-34:** Protect special-status species and other species that are sensitive to human activities.
- **Policy RC-P-35:** Allow contiguous habitat areas.
- **Policy RC-P-36:** Consider the development of new drainage channels planted with native vegetation, which would provide habitat as well as drainage.

CITY OF MANTECA TREE ORDINANCE

Manteca Municipal Code calls for the avoidance of heritage trees. Heritage trees are defined under Section 17.61.030 of the code as any natural woody plant rooted in the ground and having a diameter of 30 inches or more when measured 2 feet aboveground. Section 17.19.060 calls for protection of all existing trees having a diameter of 6 inches or more when measured 4.5 feet aboveground. The City Planning Department must be notified of planned construction or grade changes. Existing trees must be protected from construction equipment, grade changes, excavation for utilities, paving, and footers for the proposed structure of walls. Replacement of existing trees is subject to approval from the planning director and must be with a minimum 24-inch box tree of compatible species for the development site. Agricultural and farming orchard areas of 1 acre or more are exempt from Section 17.19.060.

Section 12.08.07 of the municipal code prohibits cutting, pruning, removing, injuring or interference with any tree, shrub, or plant, upon or in any street tree area or other public place in the city without prior permission and approval therefore from the superintendent. The superintendent is authorized to grant such permission at his discretion and where necessary. Excepting and with reference to utility companies, as provided in Section 12.08.080, no such permission granted shall be valid for a longer period than 30 days after its issuance.

4.5.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Information obtained from biological studies previously conducted in the vicinity of the project site, field and reconnaissance-level surveys conducted for the project area, reviews of aerial photographs, CNDDB records, and CNPS database records were used to assess impacts on biological resources resulting from project implementation.

THRESHOLDS OF SIGNIFICANCE

The proposed project would result in significant impacts on biological resources if it would:

- cause a substantial adverse effect (either directly or through habitat modifications) on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by DFG or USFWS;
- cause a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by DFG or USFWS;
- cause 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, or coastal) through direct removal, filling, hydrological interruption, or other means;
- cause a substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impediment to the use of native wildlife nursery sites;

- conflict with any federal, state or local plans, policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

IMPACT ANALYSIS

The City General Plan EIR (City of Manteca 2003b) found that buildout of the general plan study area, including the project site, could result in potentially significant impacts on biological resources, including special-status species, riparian habitat, and other sensitive natural communities, wetlands, and wildlife corridors. These impacts would be reduced to less-than-significant levels with conformance with the various policies and measures in the Resource Conservation Element of the City General Plan. With respect to cumulative biological impacts, the City's participation in the SJMSCP was determined to reduce this impact, but not to a less-than-significant level because participation is voluntary and it could not be assumed that all project proponents would opt to participate.

IMPACT 4.5-1 Impacts on Special-Status Plants. *Implementation of the project would result in the loss and disturbance of freshwater marsh habitat that could support special-status plant species. This impact would be potentially significant.*

Slough thistle, rose-mallow, Delta tule-pea, Sanford's arrowhead, and Wright's trichocoronis could be present in the freshwater marsh habitat within the irrigation drainage ditch on the project site. No special-status plant occurrences have been reported on the project site; however, the potential for their occurrence on the project site cannot be dismissed because protocol-level surveys have not been conducted and suitable habitat is present. Implementation of the project would result in the loss or disturbance of freshwater marsh habitat that could support special-status plant species. The potential loss of special-status plants as a result of project implementation would be a **potentially significant** impact.

IMPACT 4.5-2 Impacts on Special-Status Wildlife. *While impacts on giant garter snake would not be expected because low-quality habitat is present on-site and suitable upland habitat is limited, implementation of the project could result in the loss of foraging and nesting habitat for special-status raptors and could also result in the loss of active raptor nests and disturbance of nesting pairs. This impact would be potentially significant.*

The aboveground portion of the irrigation drainage ditch on the project site provides low-quality aquatic habitat for giant garter snake, and suitable upland habitat is very limited. In addition, the nearest known giant garter snake is nearly 20 miles away. Consequently, it is unlikely that giant garter snake occurs in the drainage ditch, and implementation of the project is unlikely to result in loss of individuals or significant effects to habitat for this species.

Swainson's hawk, white-tailed kite, and northern harrier could occur on the project site. Trees on and adjacent to the site provide potential nest sites for Swainson's hawk and white-tailed kite. Herbaceous cover on the site provides potential nesting habitat for northern harrier. Because no potential burrowing owl burrows and no suitable nesting habitat for tricolored blackbird were observed on the project site, theses species are unlikely to occur on-site. However, suitable foraging habitat exists on-site for all of these species. Construction activity on the project site could result in destruction of active raptor nests and/or occupied burrowing owl burrows, if they later established on the site. It could also disturb nearby nesting pairs, potentially resulting in nest abandonment. Loss of an active raptor nest and loss of Swainson's hawk foraging habitat near an active nest would both be significant impacts. Because suitable foraging habitat is abundant in the surrounding area, loss of habitat at the project site would only have the potential to affect Swainson's hawk if an active nest is located on or immediately adjacent to the site.

In summary, although potential impacts on giant garter snake, tricolored blackbird, and burrowing owl would be less than significant, the project would result in **potentially significant** impacts on Swainson's hawk, white-tailed kite, and northern harrier.

IMPACT 4.5-3 Impacts on Common Nesting Raptors. *Implementation of the project could result in loss of active nests and disturbance of nesting raptors. This impact would be potentially significant.*

Common raptors such as red-tailed hawk and American kestrel could nest on or next to the site. Although they are not considered special-status species, red-tailed hawk, American kestrel, and other raptors are protected under Section 3503.5 of the California Fish and Game Code, which prohibits the destruction of raptors and their nests. Construction activity on the project site could result in destruction of active raptor nests. It could also disturb nearby nesting pairs, potentially resulting in nest abandonment. Potential loss of an active raptor nest would be a **potentially significant** impact.

IMPACT 4.5-4 Impacts on Protected and Heritage Trees. *Implementation of the project is unlikely to result in loss or disturbance of heritage trees or native oaks. It would, however, result in loss or disturbance of existing trees that are protected by local ordinances. This impact would be significant.*

No heritage trees were observed on the project site during the October 2007 survey; however, access to the residence was not available and it could not be surveyed. Implementation of the project is unlikely to result in the disturbance or removal of heritage trees but would result in the disturbance or removal of other existing native and/or nonnative trees on the project site that are protected under the City Municipal Code. Disturbance or removal of protected trees would be a **significant** impact.

IMPACT 4.5-5 Impacts on Sensitive Habitats. *Implementation of the project could result in fill or reconfiguration of approximately 0.2 acre of irrigation drainage ditch and associated freshwater marsh habitat. This impact would be significant.*

The irrigation drainage ditch present on the project site would be converted or filled as a result of project construction. The irrigation drainage ditch is potentially subject to USACE jurisdiction under Section 404 of the CWA and DFG jurisdiction under Section 1600 of the Fish and Game Code. Freshwater marsh habitat present in the irrigation drainage ditch is also considered a sensitive habitat type by DFG. Conversion and/or fill of waters of the United States and disturbance or removal of freshwater marsh habitat would be a **significant** impact.

IMPACT 4.5-6 Impacts on Wildlife Movement. *Implementation of the project would not substantially impede wildlife movement or the use of important nursery sites as the project site does not link any areas of open space that serve as important wildlife habitat. This impact would be less than significant.*

The project site is surrounded by urban and agricultural development and does not link any areas of open space that serve as important wildlife habitat. No migratory terrestrial wildlife species or animals requiring large territories inhabit the site. Implementation of the project would not substantially impede wildlife movement or the use of important nursery sites. This would be a **less-than-significant** impact.

IMPACT 4.5-7 Consistency with Federal, State, and Local Plans, Policies, and Ordinances. *Implementation of the project would not conflict or be inconsistent with adopted federal, state, or local policies that protect sensitive resources. This impact would be less than significant.*

There are a number of federal, state, and local policies and ordinances that protect biological resources in the vicinity of the project site, the majority of which are generally applicable only to sensitive biological resources. Sensitive biological resources include special-status plants and wildlife, sensitive natural communities, and waters

of the United States. Although the project has the potential to affect special-status species and waters of the United States, these impacts would be addressed and mitigated accordingly with federal, state, and local policies (i.e., CESA, CWA Sections 404 and 401, California Fish and Game Code Sections 1600 and 3503.5, and the City General Plan). Additionally, the City of Manteca has adopted a tree preservation ordinance. The project could involve the removal of several trees that are protected. However, impacts on the protected trees would be addressed and mitigated in accordance with the guidelines in the tree preservation ordinance (see Impact 4.5-6). As a result, implementation of the project would not conflict or be inconsistent with any such policies. This would be a **less-than-significant** impact.

IMPACT 4.5-8 Consistency with Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Conservation Plan. *Implementation of the project would not conflict with or be inconsistent with the adopted SJMSCP. This impact would be less than significant.*

The project area is located within the SJMSCP area. The special-status species potentially affected by the project are covered in the SJMSCP, which was adopted by the City of Manteca on February 5, 2001. The project applicants would work with the City of Manteca to ensure that the project is consistent with the provisions outlined in the SJMSCP. This would be a **less-than-significant** impact.

4.5.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.5-6: Impacts on Wildlife Movement.

Impact 4.5-7: Consistency with Federal, State, and Local Plans, Policies and Ordinances.

Impact 4.5-8: Consistency with adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Conservation Plan.

Mitigation is recommended for the following potentially significant and significant impacts:

Mitigation Measure 4.5-1: Biological Resources—Impacts on Common Plants and Wildlife.

The project applicants shall request coverage under the SJMSCP and fees shall be paid in the amount SJCOG determines during the application and review process for the project. SJCOG may also determine, based on an independent review by a qualified biologist, that the following mitigation shall be implemented to reduce impacts on special-status plants:

a. Before project construction, surveys for the special-status plants listed in Table 4.5-1 shall be conducted by a qualified botanist at the appropriate time of year when the target species would be in flower or otherwise clearly identifiable. Surveys shall be conducted in accordance with specific methodologies described in Section 5.2.2.5 of the SJMSCP. If special-status plants are found, the following measures shall be implemented:

   - Sanford's arrowhead and slough thistle: The SJMSCP requires complete avoidance of these species; therefore, potential impacts on these species could not be covered through participation in the plan. If these species are present in the project area and cannot be avoided, a mitigation plan shall be developed, with review and input from the regulatory agencies (e.g., DFG). The mitigation plan shall identify mitigation measures for any populations affected by the project, such as creation of off-site populations through seed collection or transplanting, preserving and enhancing existing populations, or restoring or creating suitable habitat in sufficient quantities to compensate for the impact. All mitigation measures that the City determines through this consultation to be necessary shall be implemented by the project

proponent. These measures shall be designed to ensure that the project does not result in a net reduction in the population size or range of Sanford's arrowhead and slough thistle.

- Rose mallow and Delta tule pea: These species are considered widely distributed species by the SJMSCP, and dedication of conservation easements is the preferred option for mitigation. If these species are found in the project area, the possibility of establishing a conservation easement shall be evaluated. If dedication of a conservation easement is not a feasible option, payment of SJMSCP development fees may be used to mitigate impacts on these species. Use of conservation easements or development fees for establishment of habitat preserves, or a combination of the two mechanisms, shall be sufficient to avoid an overall net reduction in the population size or range of rose-mallow and Delta tule pea.

- Wright's trichocoronis: This species is considered narrowly distributed by the SJMSCP, and dedication of conservation easements is the preferred option for mitigation. If this species is found in the project area, the possibility of establishing a conservation easement shall be evaluated. If dedication of a conservation easement is not an option, the SJMSCP requires consultation with the permitting agency representatives on the Technical Advisory Committee to determine the appropriate mitigation measures. These may include seed collection or other measures and would be determined on a population basis, taking into account the species type, relative health, and abundance. After the appropriate mitigation has been determined, it shall be implemented by the project applicants.

Mitigation Measure 4.5-2: Biological Resources—Impacts on Special-Status Wildlife.

The project applicants shall request coverage under the SJMSCP and fees shall be paid in the amount determined by SJCOG during the application and review process for the project. SJCOG may also determine, based on independent review by a qualified biologist, that the following mitigation shall be implemented to reduce impacts on Swainson's hawk, white-tailed kite, and northern harrier:

Swainson's Hawk

a. If the project applicants elect to remove nest trees, then nest trees shall be removed between September 1 and February 15, when the nests are unoccupied.

b. If the project applicants elect to retain a tree with an active nest or a nest becomes established in a suitable nest tree during the construction period, a setback shall be established that excludes all construction activities within a distance of two times the dripline diameter of the tree, measured from the nest. This setback shall be maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave the nest. Setbacks shall be marked by brightly colored temporary fencing or other obvious markers.

White-Tailed Kite

Preconstruction surveys shall investigate all potential nesting trees on and adjacent to the project site (e.g., especially tree tops 15–59 feet above the ground in oak, willow, eucalyptus, cottonwood, or other deciduous trees), during the nesting season (February 15 to September 15), whenever white-tailed kite is noted on-site or within the vicinity of the project site during the nesting season. A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests.

Northern Harrier

A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback shall apply whenever

construction or other ground-disturbing activities must begin during the nesting season in the presence of nests that are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing.

Mitigation Measure 4.5-3: Biological Resources—Impacts on Common Nesting Raptors.

Common raptors are not covered by the SJMSCP. Therefore, the following mitigation measures shall be implemented to reduce impacts on these species:

a. If project activity would begin during the raptor nesting season (February 15 to September 15), preconstruction surveys shall be conducted in areas of suitable nesting habitat within 500 feet of project activity. Surveys shall be conducted within 14 days before project activity begins. If no active nests are found, no further mitigation shall be required.

b. If an active nest is found, an appropriate buffer that minimizes the potential for disturbance of the nest shall be determined by a qualified biologist. No project activities shall begin within the buffer area until the biologist confirms that the nest is no longer active or the birds are not dependent on it. The size of the buffer may vary, depending on the nest location, nest stage, construction activity, and monitoring results.

Mitigation Measure 4.5-4: Biological Resources—Impacts on Protected and Heritage Trees.

1. Before project implementation, a tree survey shall be conducted by an arborist certified by the International Society of Arboriculture to enumerate and evaluate all trees on the site that meet the standards in the City Municipal Code.

2. All trees that meet the following criteria shall be avoided and protected during all construction activity:
   - native oak trees with a trunk at least 6 inches in diameter at a height of 4.5 feet above the ground and
   - heritage trees (all trees with a trunk diameter of 30 inches at a height of 2 feet above the ground).

3. Trees that are subject to protection but must be removed as a result of project implementation shall be replaced with in-kind species in accordance with tree planting specifications established by the City tree ordinance. Native oak trees shall be replaced at a ratio of 3 to 1 and heritage trees shall be replaced at a ratio of 5 to 1.

4. Replacement tree plantings shall be monitored for 3 years in accordance with monitoring protocols set forth in the City tree ordinance.

5. If monitoring indicates that replacement plantings are not meeting performance standards, remedial measures shall be implemented. Appropriate measures shall be determined in coordination with the City.

Mitigation Measure 4.5-5: Biological Resources—Impacts on Sensitive Habitats.

1. Before project implementation, a delineation of waters of the United States, including wetlands that would be affected by the project, shall be made by qualified biologists through the formal Section 404 wetland delineation process. The delineation shall be submitted to and verified by USACE.

2. If, based on the verified delineation, it is determined that fill of waters of the United States would result from project implementation, authorization for such fill shall be secured from USACE through the Section 404 permitting process.

3. The project applicants shall also consult with DFG to determine whether a Section 1600 Streambed Alteration Agreement may be required for alteration of irrigation drainage ditch and impacts on freshwater marsh habitat.

4. The acreage of waters of the United States and freshwater marsh habitat that would be removed shall be replaced or restored/enhanced on a "no net loss" basis in accordance with USACE and DFG regulations and Development Title 9-1505. A mitigation plan to compensate for unavoidable loss of wetlands shall be developed and implemented. Compensation shall ensure through creation and/or enhancement of appropriate wetland habitats that there is no net loss of overall functions and values of the wetland habitat types adversely affected by the proposed project. The amount of wetland habitat to be included in the mitigation site shall be based on the value of the proposed compensation action and the nature of the effects, but a minimum of a 1:1 ratio of adversely affected habitat to mitigation habitat shall be provided. Compensation may be provided at a ratio of 1:1 of created habitat to filled habitat, while a higher mitigation ratio may be appropriate for mitigation through enhancement and a lower mitigation ratio may be appropriate for indirect effects to habitat preserved on-site. The mitigation plan shall, at a minimum, identify the location of the mitigation site, specify habitat types and associated acreages to be created or enhanced, establish specific success criteria, describe short- and long-term maintenance and management of the mitigation site and wetland habitats preserved on-site, and specify remedial measures to be undertaken if mitigation success criteria are not met. Long-term protection of the mitigation site and on-site preserved wetlands shall be ensured through fee title acquisition, conservation easement, or other suitable mechanisms. Long-term management of mitigation lands shall be ensured by establishing a management endowment or other suitable funding source. The mitigation plan shall be reviewed and approved by the applicable resource agencies and applicable permits, including a Section 404 permit from the USACE and Section 401 Clean Water Certification from the RWQCB shall be obtained before implementation of the project.

4.5.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Incorporation and implementation of the mitigation measures specified in the SJMSCP (and summarized in this DEIR) for Impacts 4.5-2 and 4.5-3 and incorporation and implementation of the mitigation measures outlined for Impacts 4.5-4 through 4.5-6 would reduce the significance of these impacts to a less-than-significant level because the project would result in no loss of individuals of special-status species, sensitive natural communities, or other sensitive natural resources.

4.6 HAZARDS AND HAZARDOUS MATERIALS

This section evaluates the potential hazardous material and public health impacts from implementation of the Union Crossing project. The analysis presented in this section is based on review of the Phase I and Phase II environmental site assessments (ESA) prepared for the project site by Bureau Veritas in August 2007 and September 2007, respectively. A Phase I ESA was also prepared by Condor Earth Technologies Inc. in April 2007 and included analysis of the southernmost 5.8-acre portion of the site (Phase 3; see Exhibit 3-3 in Chapter 3, "Project Description," of this DEIR). The ESAs did not analyze the three residential lots (10.9 acres) or segment of Woodward Avenue (1.7 acre) because no development on these portions of the project site is proposed; however, the potential for these areas of the project site to affect or be affected by hazardous material contamination was considered.

The project site is not located within an airport land use plan or within 2 miles of a public or private airport. Therefore, this issue is not evaluated further in this DEIR. The project's potential effect on emergency access routes and plans is discussed in Section 4.11, "Transportation and Circulation."

4.6.1 ENVIRONMENTAL SETTING

The 48.5-acre portion of the project site that is proposed for development (Phase 1, 2, and 3) is referred to herein as the "subject property." The entire 65 acres included as part of the proposed project is referenced herein as the "project site." Location of potential hazardous materials as identified by their relative location only apply to the subject property.

The subject property is used primarily for growing of row crops including corn, wheat, and most recently oats. A Phase I ESA was prepared by Condor Earth Technologies in April 2007 and by Bureau Veritas in August 2007 for the subject property (copies of these reports are available for review at the City of Manteca Community Development Department, 1001 Center Street, Manteca, California). The purpose of the Phase I ESA was to document recognized environmental conditions on the property related to current and historical uses of the area and to evaluate the potential for release of hazardous materials from on-site or off-site sources that could significantly affect environmental conditions at the subject property. The site reconnaissance and records search conducted for the Phase I ESA, which analyzed Phase 1 and 2 of the subject property, did not find documentation of any recognized environmental conditions in soil or groundwater associated with the historic use of the property (Bureau Veritas 2007a). The Condor Earth Technologies Phase I ESA, identified a recognized environmental condition located in the southwest corner of the Phase 3 area along Woodward Avenue. An area of stained soil, likely from illegal dumping of used motor oil, was discovered along with several empty oil containers located nearby at the time of the April 2007 survey (Condor Earth Technologies 2007).

EDAW searched the U.S. Environmental Protection Agency's (EPA's) Envirofacts Web site to confirm and update information presented in the ESA. The Envirofacts Web site presents information from several regulatory agencies and databases including those for the EPA, Department of Toxic Substances Control (DTSC), and Office of Emergency Services. According to these databases, the entire project site is not listed in the EPA databases (EPA 2008). No sites within one-quarter mile of the project site have the potential to create a hazardous condition on the project site or in groundwater beneath the site (EPA 2008).

HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

The subject property was assessed for signs of storage, use, or disposal of hazardous substances and/or petroleum products. Potentially hazardous substances and/or petroleum products are currently not used or stored on-site. No observations were made that indicated potential historical use of hazardous substances and/or petroleum products except for stained soil observed in the southwest corner of Phase 3 of the subject property and the potential application of pesticides and/or herbicides for agricultural use (Condor Earth Technologies 2007). However, the property owner stated that he was not aware of these types of chemicals being used at the subject property and no

evidence of bulk mixing or improper use of pesticides and/or herbicides was reported or observed (Bureau Veritas 2007a).

STORAGE TANKS

The subject property was inspected for evidence of underground storage tanks (USTs) (e.g., vent piping, dispensing equipment, pavement variations). Evidence of USTs was not observed at the subject property during the assessment. In addition, no USTs are registered with the State of California (Bureau Veritas 2007a).

The subject property was inspected for evidence of aboveground storage tanks (ASTs) (e.g., concrete foundations or saddles, pedestals or steel support structures). Evidence of ASTs was not observed at the subject property during the assessment (Bureau Veritas 2007a).

The subject property was inspected for evidence of in-ground hydraulic equipment (e.g. hydraulic elevators or lifts that have reservoirs containing hydraulic fluid or jacks underground). Although not regulated as USTs, hydraulic equipment of this type can be of concern because of the potential for oil leaks from the hydraulic cylinders. Hydraulic fluid in equipment installed in 1978 or before may contain polychlorinated biphenyls (PCBs). Evidence of hydraulic equipment was not observed at the subject property during the assessment (Bureau Veritas 2007a).

POLYCHLORINATED BIPHENYLS

The subject property was inspected for the presence of liquid-cooled electrical units (transformers, light ballasts, and capacitors) and major sources of hydraulic fluid (elevators and lifts). Such units are notable because they may be potential PCB sources. Evidence of liquid-cooled electrical units or sources of hydraulic fluid were not observed at the subject property during the assessment (Bureau Veritas 2007a).

WASTEWATER AND STORMWATER DISCHARGE

The subject property was inspected for evidence of oil/water separators, clarifiers, sumps and trenches (e.g., hatches, manholes, patches on the floor slabs). Although not regulated as USTs, these features can be of concern because of the potential for leaks into the subsurface. Evidence of oil/water separators, clarifiers, sumps or trenches was not observed (Bureau Veritas 2007a).

The subject property was inspected for evidence of current or former septic systems (e.g., clean-out manhole, records, interviews). Evidence of septic systems was not observed during the assessment; however, two septic systems were reportedly located at the subject property and were associated with two former on-site residences. According to the property owner, septic systems were located adjacent to the former residences that were located in the northeastern and southeastern portions of the subject property. According to the property owner, the septic system was removed from the northeastern portion of the subject property in approximately the late 1960s, around the time the residence was removed. The septic system in the southeastern portion of the subject property was reportedly removed when the residence was moved in January 2006 (Bureau Veritas 2007a).

The subject property was inspected for evidence of wells (e.g., dry, irrigation, injection, abandoned, monitor, supply). Condor observed evidence of one abandoned well immediately northwest of the residence on the subject property (Condor Earth Technologies 2007). However, according to previous documents, maps, and interviews, two domestic wells were previously present at the subject property. Pieces of a metal stand pipe and a concrete collar were observed lying on the ground in the southeastern portion of the subject property at the time of reconnaissance. The property owner indicated that the well materials were part of the abandoned well associated with a former residence in this area. In addition, he stated that the domestic well located adjacent to the former residence in the northeastern portion of the subject property was capped when the structures were removed. Information obtained through Environmental Data Resources (EDR) indicates that a well is located at the subject property and is registered as a federal U.S. Geological Survey well that is 115 feet deep (Bureau Veritas 2007a).

ASBESTOS AND LEAD-BASED PAINT

Currently, a residential home is present in the southeast portion of the subject property (Phase 3 of the subject property). It is estimated that the residence was constructed in the late 1970s or early 1980s (Condor Earth Technologies 2007). Until the 1980s, building materials containing asbestos and lead as an additive to paint may have been used. A visual inspection for suspect asbestos-containing materials and sampling for lead-based paint was not conducted (Condor Earth Technologies 2007).

RADON

Radon is a naturally occurring radioactive gas formed by the decay of uranium in bedrock and soil. The potential adverse health effects associated with radon gas depend on various factors, such as the concentration of the gas and duration of exposure. The potential for elevated radon concentrations was evaluated for the subject property vicinity through a review of EPA Radon Zone data, provided by EDR. San Joaquin County is located in Zone 3. Zone 3 has predicted average screening concentrations of less than 2 picoCuries of radon per liter of air (pCi/L). The EPA action level is 4.0 pCi/L. According to EDR, out of 20 sites in San Joaquin County that were tested, 90% demonstrated concentrations of less than 4.0 pCi/L. Radon is not expected to present a concern (Bureau Veritas 2007a).

SOIL/GROUNDWATER

Based on the results of the Phase I ESA, previous agricultural use of the subject property could have resulted in use of persistent pesticides. Historical use of the subject property for agricultural purposes may have included the use of chemical pesticides and/or herbicides. Based on these findings, Bureau Veritas recommended that surface soils at the subject property be evaluated. A *Limited Subsurface Investigation Report* (Phase II ESA) was prepared by Bureau Veritas, which involved collecting 28 discrete surface soil samples across the subject property. Arsenic was detected in the soil samples at concentrations ranging from 1.1 milligrams per kilogram (mg/kg) to 1.8 mg/kg. These detected concentrations are below the residential Environmental Screening Level established at 5.5 mg/kg for arsenic. Concentrations of organochlorine pesticides were not detected in the soil samples (Bureau Veritas 2007b).

4.6.2 REGULATORY SETTING

Hazardous materials handling is subject to numerous laws and regulations at all levels of government. Table 4.6-1 lists the authority of federal and state regulatory agencies that oversee hazardous materials handling and management. A summary of the most pertinent regulations is provided below.

Table 4.6-1
Summary of Hazardous Materials Regulatory Authority

Regulatory Agency	Jurisdiction	Authority
Federal		
Environmental Protection Agency (EPA)	Federal	Federal Water Pollution Control Act Clean Air Act Resource Conservation and Recovery Act Federal Emergency Planning and Community Right to Know Act (EPCRA) Comprehensive Environmental Response, Compensation & Liability Act Superfund Amendments and Reauthorization Act Federal Insecticide, Fungicide & Rodenticide Act
Department of Transportation (DOT)	Federal	Hazardous Materials Transportation Act

Table 4.6-1
Summary of Hazardous Materials Regulatory Authority

Regulatory Agency	Jurisdiction	Authority
Occupation Safety and Health Administration (OSHA)	Federal	Occupational Safety and Health Act
State		
Department of Toxic Substances Control (DTSC)	Statewide	Health and Safety Code California Code of Regulations (CCR) Titles 17, 19, and 22
Department of Industrial Relations (Cal/OSHA)	Statewide	California Occupational Safety and Health Act
Department of Transportation (Caltrans)	Statewide	Hazardous materials transportation
Public Utilities Commission (PUC)	Statewide	Natural gas pipelines; General Order No. 112-D
Office of Emergency Services (OES)	Statewide	Hazardous Materials Release/Response Plans Acutely Hazardous Materials Law
State Fire Marshall	Statewide	Uniform Fire Code, CCR Title 19 Hazardous liquid pipelines
Health and Welfare Agency	Statewide	Safe Drinking Water & Toxic Enforcement Act
Integrated Waste Management Board (IWMB)	Statewide	Assembly Bill 939
State Water Resources Control Board (SWRCB)	Statewide	Porter-Cologne Water Quality Control Act CCR Title 23
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Regional	National Pollutant Discharge Elimination System permit requirements
Bay Area Air Quality Management District (BAAQMD)	Regional	California Clean Air Act, BAAQMD Regulations
Local		
San Joaquin County Environmental Health Department	County	Hazardous materials disclosure Contaminated sites cleanup CCR Title 22 CEQA implementation
County Agricultural Commissioner	County	Agricultural chemicals regulation
City of Manteca Sewer Utility	Local	Wastewater conveyance
City of Manteca Fire Department	Local	Hazardous materials disclosure Emergency response

Sources: Data compiled by EDAW in 2008

HAZARDOUS MATERIALS MANAGEMENT

Federal and state laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and if such materials are accidentally released, to prevent or to mitigate injury to health or the environment. The Federal Emergency Planning and Community Right to Know Act of 1986 imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency

response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies, including the San Joaquin County Department of Environmental Health and the City of Manteca Fire Department administer laws and regulations.

Storage of hazardous materials in ASTs is regulated by the State Water Resources Control Board, which has overall responsibility for implementing all regulations set forth in the California Code of Regulations (CCR). State standards cover spill prevention, control, and countermeasure plans for ASTs with total capacity greater than 1,320 gallons.

WORKER SAFETY

The California Occupational Safety and Health Administration (Cal/OSHA) and the federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the Occupational Safety and Health Act of 1970. OSHA has adopted numerous regulations pertaining to worker safety, contained in the Code of Federal Regulations Title 29 (29 CFR). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling. Cal/OSHA assumes primary responsibility for developing and enforcing state workplace regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations pertaining to the use of hazardous materials in the workplace, as detailed in CCR Title 8, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets be available to employees and that employee information and training programs be documented.

EMERGENCY RESPONSE TO HAZARDOUS MATERIALS INCIDENTS

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is managed by the California Office of Emergency Services, which coordinates the responses of other agencies including the California EPA (Cal/EPA), the California Highway Patrol (CHP), California Department of Fish and Game, Central Valley Regional Water Quality Control Board, San Joaquin County Department of Environmental Health, San Joaquin County Sheriff's Department, and the City of Manteca Fire Department.

HAZARDOUS MATERIALS TRANSPORT

The U.S. Department of Transportation regulates hazardous materials transportation between states. State agencies with primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the CHP and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

HAZARDOUS WASTE MANAGEMENT

The California DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under the Federal Resource Conservation and Recovery Act and the State Hazardous Waste Control Law. Both

laws impose comprehensive regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

CITY OF MANTECA GENERAL PLAN

The *City of Manteca General Plan 2023* (City General Plan) includes the following goals and policies related to hazards and hazardous materials that are relevant to this analysis:

- **Policy S-P-15:** The City shall maintain an awareness of hazardous materials throughout the Manteca region.
- **Policy S-P-16:** City approvals of all new development shall consider the potential for the production, use, storage, and transport of hazardous materials and provide for reasonable controls on such hazardous materials.
- **Policy S-P-17:** Within its authority, the City shall regulate the production, use, storage, and transport of hazardous materials to protect the health of Manteca residents.

4.6.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The following information and reports documenting potential hazardous conditions at the project site were reviewed for this analysis:

- plans for the project;
- available literature including documents published by city, county, state, and federal agencies;
- applicable elements from the City General Plan;
- *Phase I Environmental Site Assessment Report, Union Commercial APNS 226-160-04, -05, and-17, 19707 and 20109 South Union Road and 5961 East Woodward Avenue, Manteca, San Joaquin County, California* (Condor Earth Technologies 2007);
- *Phase I Environmental Site Assessment, 19709 & 20109 South Union Road* (Bureau Veritas 2007a); and
- *Limited Subsurface Investigation Report* (Bureau Veritas 2007b).

In addition to reviewing the above reports, EDAW searched EPA's Envirofacts Web site (as described above) to confirm information presented in the ESA and to identify any new hazardous material sites in the project area. Project activities were evaluated against the hazardous materials information gathered from the above sources to determine whether any risks to public health and safety or other conflicts would occur.

THRESHOLDS OF SIGNIFICANCE

The project would result in significant hazardous materials impacts if it would:

- 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 or through the routine transport, use, or disposal of hazardous materials;
- result in safety hazards to people residing or working in the project area;

- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or

- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

IMPACT ANALYSIS

IMPACT 4.6-1 Create a Safety Hazard to Construction Workers. *No hazardous environmental conditions have been identified on the northern portion of the subject property (phase 1 and 2). Based on analytical data from collected soil samples from the Phase 1 and 2 portion of the subject property, concentrations of organochlorine pesticides were not detected and detected arsenic concentrations were below the established regulatory screening levels and background levels for California. Based on these findings, the soils in this portion of the site are considered nonhazardous and would not create a significant environmental or health hazard if left in place. While a Phase 1 ESA was prepared for the Phase 3 portion of the subject property, soil samples were not collected for this portion of the subject property. This area could have elevated concentrations of pesticides and arsenic and could have localized contamination for discarded oil. Therefore, development and potential safety hazards in Phase 3 of the subject property are unknown. This would be a* ***potentially significant*** *impact.*

The Phase I ESA identified areas of the project site where past operations could have resulted in elevated concentrations of hazardous constituents (i.e., pesticides) in surface soils and potentially groundwater. However, soil samples from the Phase 1 and 2 portion of the subject property determined the level of arsenic concentrations are below residential Environmental Screening Levels and organochlorine pesticides were not detected (Bureau Veritas 2007b). Based on these findings, the soils that were tested are considered nonhazardous and would not create a significant environmental or health hazard if left in place. In addition, according to EPA's Envirofacts Web site no records of any toxic releases, hazardous waste, or other violations were found on the project site. There were also no sites within 0.25-mile of the project site that have the potential to create a hazardous condition on the project site or in groundwater beneath the site (EPA 2008).

The Phase 3 portion of the subject property (refer to Exhibit 3-3 in Chapter 3 of the DEIR) was not included in the Phase II ESA and, therefore, the potential for elevated concentrations of hazardous constituents in soils and groundwater is unknown for this area. Development of the project would involve demolition of a residence on the Phase 3 portion of the subject property (Phase 3), site grading, excavation for utilities, backfilling, and construction of new commercial facilities. During construction activities, construction workers could come in contact with and be exposed to hazardous material present associated with past agricultural operations (e.g., pesticides), the on-site residence (e.g., asbestos) and potentially contaminated soils (i.e., oil residue) in the southernmost portion of the subject property (Phase 3). The presence of contamination in on-site soils could create a significant environmental or health hazard if left in place. Although no records of hazardous constituents were found in areas that were tested and no records of hazards were listed for the project site in the Environfacts Web site, the potential exists for the Phase 3 portion of the site to contain hazardous constituents that could pose a safety hazard to workers. Therefore, this is a **potentially significant** impact.

IMPACT 4.6-2 Create a Significant Hazard to the Public or the Environment. *The project would involve the storage, use, and transport of hazardous materials at the project site during construction activities. In addition, because the project includes commercial uses, it is possible that some facilities could use hazardous materials during operation. However, use of hazardous materials at the site would be in compliance with local, state, and federal regulations. Therefore, impacts related to creation of significant hazards to the public through routine transport, storage, use, disposal, and risk of upset would be* ***less than significant.***

Development of the project site with commercial uses would involve the storage, use, and transport of hazardous materials during construction activities. In addition, commercial uses associated with project operation could

include facilities that could use and routinely transport hazardous material on and off the project site. Transportation of hazardous materials on area roadways is regulated by the CHP and Caltrans, whereas use of these materials is regulated by the DTSC, as outlined in Title 22 of the CCR. The project applicant, builders, contractors, business owners, and others would be required to use, store, and transport hazardous materials in compliance with local, state, and federal regulations during project construction and operation. Facilities that would use hazardous materials on-site after the project is constructed would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Therefore, the project would be consistent with relevant City General Plan policies that regulate the use of hazardous materials (Policies S-P-16 and S-P-17). Because the project would implement and comply with existing hazardous material regulations, impacts related to creation of significant hazards to the public through routine transport, use, disposal, and risk of upset would be unlikely with project development. Therefore, this would be a **less-than-significant** impact.

IMPACT 4.6-3 Potential Wildfire Hazard. *The project site is not located in a designated wildland fire area or a High Fire Hazard Severity Zone. Therefore, the project would not expose people or structures to significant risk of loss or injury involving wildland fires. This would be a less-than-significant impact.*

The California Department of Forestry and Fire Protection identifies wildland fire areas and Very High Fire Hazard Severity Zones for all counties in California. None of these areas or zones are located in or near the City of Manteca (CAL FIRE 2008). In addition, the northern end of the project site is located immediately adjacent to an established urban area. Therefore, the project would not expose people or structures to significant risk of loss or injury involving wildland fires. This would be a **less-than-significant** impact.

IMPACT 4.6-4 Emit or Handle Hazardous Materials or Waste near a School. *The project site is located within one-quarter mile of Veritas Elementary School. The project would involve the storage, use, and transport of hazardous materials at the project site during construction activities. In addition, because the project includes commercial uses, it is likely that some facilities could use hazardous materials during operation. However, use of hazardous materials at the site would be in compliance with local, state, and federal regulations. Therefore, impacts related to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school would be a less-than-significant impact.*

Development of the project site with commercial uses would involve the storage, use, and transport of hazardous materials during construction activities. In addition, commercial uses associated with project operation could include facilities that could use and routinely transport hazardous material on and off the project site. Transportation of hazardous materials on area roadways is regulated by the CHP and Caltrans, whereas use of these materials is regulated by the DTSC, as outlined in Title 22 of the CCR. The project applicant, builders, contractors, business owners, and others would be required to use, store, and transport hazardous materials in compliance with local, state, and federal regulations during project construction and operation. Facilities that would use hazardous materials on-site after the project is constructed would be required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. Because the project would implement and comply with existing hazardous material regulations, impacts on the nearby school related to hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste would be unlikely with project development. Therefore, this would be a **less-than-significant** impact.

4.6.4 MITIGATION MEASURES

No mitigation measures are necessary for the following less-than-significant impacts:

Impact 4.6-2: Create a Significant Hazard to the Public or Environment.

Impact 4.6-3: Potential Wildfire Hazard.

Impact 4.6-4: Emit or Handle Hazardous Materials or Waste near a School

Mitigation is recommended for the following potentially significant impact.

Mitigation Measure 4.6-1: Create a Safety Hazard for Construction Workers.

Prior to construction activities, the project applicant shall prepare a Phase II ESA for the southernmost portion of the subject property (Phase 3 area; refer to Exhibit 3-3 of Chapter 3, "Project Description"). The applicant shall implement all recommended actions identified in the Phase I ESA's and Phase II ESA's. In addition, the project applicant shall prepare a Safety Hazard Plan.

This plan will outline measures that will be employed to protect construction workers from exposure to hazardous materials during remediation, demolition, and construction activities. The project applicant will consult with the contractor to determine the measures to be employed at the site, which could include posting notices, limiting access to the site, monitoring the air quality, watering, and installation of wind fences. Contractors will be required to comply with OSHA and Cal/OSHA health and safety standards.In the event that contaminated soil is encountered in the Phase 3 portion of the subject property, the contractor will prepare a site plan that identifies necessary remediation activities appropriate for proposed land uses, including excavation and removal of on-site contaminated soils, and redistribution of clean fill material within the subject property. The plan will include measures that ensure the safe transport, use, and disposal of contaminated soil and building debris removed from the project site, in coordination with and to the satisfaction of the appropriate regulatory agency (e.g., Regional Water Quality Control Board, California Department of Toxics and Substance Control, etc.), The contractor will be required to comply with the plan and applicable local, state, and federal laws. The plan will outline measures for specific handling and reporting procedures for hazardous materials, and disposal of hazardous materials removed from the site at an appropriate off-site disposal facility.

4.6.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation measure identified above, the project's hazards and hazardous materials impacts would be reduced to less than significant because implementation of the project would not create a safety hazard for construction workers.

4.7 GEOLOGY, SOILS, SEISMICITY, AND PALEONTOLOGICAL RESOURCES

This section describes current conditions at the project site relative to geology, soils, seismicity, and paleontological resources; analyzes potential environmental impacts; and recommends mitigation measures to reduce significant or potentially significant impacts to less-than-significant levels. The analysis presented in this section is based on review of the geotechnical services report that Kleinfelder prepared for the project site in August 2007. However, this geotechnical report analyzed only the northern 47-acre portion of the project site (Phase 1 and Phase 2; see Exhibit 3-3 in Chapter 3, "Project Description," of this DEIR) and does not cover the southernmost 1.5-acre portion (Phase 3; see Exhibit 3-3 in Chapter 3 of this DEIR). Therefore, the analysis of environmental impacts (Section 4.7.3 of this DEIR) takes this discrepancy into account.

The project site is not located in an area of known mineral resources, nor are any expected to be encountered during project development. As such, no impacts related to mineral resources are anticipated and this issue is not evaluated further in this DEIR.

Geologic mapping (Wagner, Bortugno, and McJunkin 1991) indicates that the project site is underlain by both Holocene-age (11,000 years before present [B.P.] and younger) Dune Sand and the Pleistocene-age (12,000 to 1.8 million years B.P.) Modesto Formation. However, soil borings taken by Kleinfelder (2007) indicate that the project site is underlain by Dune Sand across the project site to a depth of 16 feet below the ground surface (bgs). By definition, an object must be more than 11,000 years old to be considered a fossil, and since project-related earth-moving activities would not occur in depths greater than 16 feet bgs, there would be no impact on paleontological resources. As a result, paleontological impacts of the project are not evaluated further in this DEIR.

4.7.1 ENVIRONMENTAL SETTING

Because the geotechnical report (Kleinfelder 2007) did not cover the southernmost portion of the project site, the following discussion of environmental setting makes two references to specific areas of the project site. The northern 47-acre portion of the project site (Phase 1 and Phase 2; see Exhibit 3-3 in Chapter 3 of this DEIR) is referred to herein as the "subject property." The entire 65 acres included as part of the proposed project is referenced herein as the "project site." No new development is proposed for the 10.9-acre area with three existing residential parcels (see Exhibit 3-3 in Chapter 3 of this DEIR).

PHYSIOGRAPHIC SETTING

The project site is located at the northern end of the San Joaquin Valley. Together, the San Joaquin Valley and the Sacramento Valley constitute the Great Valley of California. The Great Valley is a broad structural trough bounded by the tilted block of the Sierra Nevada on the east and the complexly folded and faulted Coast Ranges on the west.

The Great Valley is composed of thousands of feet of sedimentary deposits that have undergone periods of subsidence and uplift over millions of years. During the Jurassic (approximately 206 million years B.P.) and Cretaceous (approximately 144 million years B.P.) periods of the Mesozoic era, the Great Valley existed in the form of an ancient ocean. By the end of the Mesozoic era, the northern portion of the Great Valley began to fill with sediment as tectonic forces caused uplift of the basin. Geologic evidence suggests that the Sacramento Valley and San Joaquin Valley gradually separated into two separate water bodies as uplift and sedimentation continued. By the time of the Miocene epoch (approximately 24 million years B.P.), sediments deposited in the Sacramento Valley were mostly of terrestrial origin. In contrast, the San Joaquin Valley continued to be inundated with water for another 20 million years, as indicated by marine sediments dated to the late Pliocene epoch (approximately 5 million years B.P.). Most of the surface of the Great Valley is covered with Recent (Holocene) (less than 10,000 years B.P.) and Pleistocene (10,000 to 1.5 million years B.P.) alluvium. This alluvium is

composed of sediments from mountains of the Sierra Nevada to the east and the Coast Ranges to the west that were carried by water and deposited on the valley floor. Siltstone, claystone, and sandstone are the primary types of sedimentary deposits.

LOCAL GEOLOGY

The project site is located in the U.S. Geological Survey (USGS) Manteca 7.5-Minute Quadrangle and is approximately 65 acres. The topography of the site is relatively flat and the elevation is approximately 30 feet above mean sea level.

Much of the area surrounding the city of Manteca is covered by Holocene-age Dune Sand deposits (Wagner, Bortugno, and McJunkin 1991). Inland dunes, like those found at the subject property, usually exist in the form of ridges, small hills, and knolls found on ancestral lake beds and outwash plains. Dune Sand at the subject property originated on the broad coastal plain of the ancestral Sacramento–San Joaquin River system. The subject property is situated on alluvial flatland deposits that were formed by nearby streams and drainages. The subject property is underlain by weakly consolidated quaternary Dune Sand to a depth of approximately 16 feet below the ground surface. Beneath the Dune Sand, the weakly consolidated Late Pleistocene clay, silt, sand, and gravel alluvium of the Modesto Formation is present (Kleinfelder 2007).

RECREATIONAL GEOLOGIC FEATURES

Recreational geologic resources typically include rock or mineral collecting, volcanoes, surface hydrothermal features, or surface expression of geologic features unique enough to generate recreational interests of the general public (e.g., natural bridges, caves, features associated with glaciation, and geomorphic features such as waterfalls, cliffs, canyons, and badlands). Based on a review of available geological literature, there are no known recreational geologic resources associated with the project site.

REGIONAL SEISMICITY AND FAULT ZONES

The northern San Joaquin Valley has generally not been seismically active in the last 10,000 years. Most faults in the project region with known or estimated activity during the Holocene epoch are generally located in the Bay Area, approximately 40 miles to the west, and lie within the Coast Ranges geomorphic province, as shown in Table 4.7-1.

Table 4.7-1
Regional Fault Activity during the Holocene Epoch

Faults Active in Holocene Time near Project Site	Approximate Distance from Project Site	Maximum Moment Magnitude[1]	Fault Type[2]
Great Valley	23 miles	6.7	B
Greenville/Marsh Creek/Clayton	38 miles	6.9	B
Ortigalita	40 miles	6.9	B
Calaveras	60 miles	6.8	B
Hayward	63 miles	7.1	A
Concord	63 miles	6.9	A
Green Valley	65 miles	6.9	A
San Andreas (1838 Event)	65 miles	7.9	A

[1] The moment magnitude scale is used by seismologists to compare the energy released by earthquakes. Unlike other magnitude scales, it does not saturate at the upper end, meaning there is no particular value beyond which all earthquakes have about the same magnitude, which makes it a particularly valuable tool for assessing large earthquakes.

[2] Designations from California Probabilistic Seismic Hazard Maps.

Source: Jennings 1994, Chao et al. 2003, Kleinfelder 2007

The fault closest to the project site that has been active during the Holocene epoch is the Great Valley Fault System, a series of blind-thrust faults located along the western edge of the San Joaquin Valley. A number of earthquakes have been attributed to this fault system during the last 100 years, including the 1881 West San Joaquin Valley earthquakes, the 1983 Coalinga earthquake, and the 1985 Kettlemen Hills earthquake (Toppozada 1987). Only the 1983 Coalinga earthquake resulted in surface ground rupture.

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, ground failure/liquefaction, subsidence and lateral spreading, and tidal waves and seiches, which are discussed below.

Fault Ground Rupture

Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over an active fault can be torn apart if the ground ruptures. Surface ground rupture along faults is generally limited to a linear zone a few yards wide. The Alquist-Priolo Act (see Section 4.7.2, "Regulatory Setting," below) was created to prohibit the location of structures designed for human occupancy across the traces of active faults, thereby reducing the loss of life and property from an earthquake. Because no active faults have been mapped across the project site by the California Geological Survey (CGS) or USGS and the project site is not located in an Alquist-Priolo Earthquake Fault Zone, fault ground rupture does not represent a hazard at the project site (CGS 2007, Hart and Bryant 1999).

Seismic Ground Shaking

Seismic ground shaking is the most likely seismic hazard to affect the project site, which could result in a risk to life and property. Seismic ground shaking could occur from an earthquake generated by active and potentially active faults located in the Bay Area and along the western margin of the San Joaquin Valley.

Ground motions can be estimated using the probabilistic method at specified hazard levels. The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristic of the source. The Probabilistic Seismic Hazard Assessment Model, published by USGS and the California Geological Survey (formerly the California Department of Conservation, Division of Mines and Geology), identifies the seismic hazard based on a review of these characteristics and historical seismicity throughout California. The results of these studies suggest there is a 10% probability that the peak horizontal acceleration experienced at the project site would exceed 0.2 g (where "g" is the acceleration of gravity) in 50 years (Kleinfelder 2007). Damage to a single-family dwelling typically begins at 0.2 g (Risk Prediction Initiative 1996, Rogers et al. 1996).

According to the California Building Standards Code (CBC), specifies more stringent design guidelines where a project would be located adjacent to a Class "A" or "B" faults as designed by the California Probabilistic Seismic Hazard Maps (Cao et al. 2003). Faults with an "A" classification are capable of producing large-magnitude (M) events (M greater than 7.0), have a high rate of seismic activity (e.g., having slip rates greater than 5 millimeters per year), and have well-constrained paleoseismic data (e.g., evidence of displacement within the last 700,000 years). Class "B" faults are those that lack paleoseismic data necessary to constrain the recurrence intervals of large-scale events. Faults with a "B" classification are capable of producing an event of 6.5 M or greater. As shown in Table 4.7-1, no Class A or B faults are located within 23 miles of the project site.

Ground Failure/Liquefaction

Soil liquefaction may occur when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. There are four types of ground failure or collapse of soil structures that commonly result from liquefaction: lateral spread, flow

failure, ground oscillation, and loss of bearing strength. Age also is a factor in the potential of soils to liquefy, with Holocene deposits being the most sensitive to liquefaction.

One consequence that may result from the occurrence of liquefaction is an associated surface expression. If the seismic event occurs over an extended duration, the liquefied soils may migrate toward the surface, resulting in ejection and subsequent sand boiling at the surface.

Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Factors determining the liquefaction potential of a given site are soil type, the level and duration of possible seismic ground motions, the type and consistency of soils, and the depth to groundwater. Loose sands and peat deposits are particularly susceptible to liquefaction. Its occurrence is particularly likely where land has been reclaimed from inundated areas by filling with loose sand. Clayey silts, silty clays, and clays deposited in freshwater environments are generally stable under the influence of seismic ground shaking.

The geotechnical engineering report prepared by Kleinfelder (2007) for the subject property presented boring data indicating that groundwater was encountered at depths of approximately 8½ to 14 feet beneath the surface. Kleinfelder further determined that the majority of near-surface soils were predominantly medium-dense silty sand underlain by highly interbedded strata of medium-stiff to hard, clayey silt, sandy silt, sandy clay and very-loose to dense, fine-to coarse-grained, silty sand and relatively "clean" sand to the maximum depths. Kleinfelder reported that some layers (one-half to 3 feet thick) of silty sand and relatively "clean" sand encountered below the water table would be susceptible to seismic liquefaction. Kleinfelder estimated that the cumulative settlement at the top of the uppermost liquefiable sand layer could be in the range of about one-quarter to 1¼ inches. However, the potential for soil venting or other ground surface disruption was determined to be low (Kleinfelder 2007). The sand strata present at the project site may have the potential for liquefaction in the event of a large magnitude earthquake along the nearest segments of the Great Valley Fault. The potential for liquefaction generated by more distant faults to the east, west, and southwest is considered low. Liquefaction would not be expected to be widespread given the discontinuous and localized nature of these sand layers. (Kleinfelder 2007.)

Subsidence and Lateral Spreading

Land surface subsidence can be induced by both natural and human phenomena. Natural phenomena can include subsidence resulting from tectonic deformations and seismically induced settlements; soil subsidence from consolidation, hydrocompaction, or rapid sedimentation; subsidence from oxidation or dewatering of organic-rich soils; and subsidence related to subsurface cavities. Subsidence related to human activity includes subsurface fluid or sediment withdrawal. Pumping of water for residential, commercial, and agricultural uses from subsurface water tables causes more than 80% of the identified subsidence in the United States (Galloway, Jones, and Ingebritsen 1999).

By 1970, subsidence in excess of 1 foot had affected one-half of the San Joaquin Valley, more than 5,200 square miles of farmland. The maximum subsidence, over 28 feet, was recorded near Mendota. Land subsidence in the San Joaquin Valley since the 1970s has generally slowed from reductions in groundwater pumping and the subsequent recovery of groundwater levels as a result of a greater emphasis on surface water irrigation.

On the subject property, dry, loose sands and nonplastic silts may experience some settlement or subsidence when subjected to cyclic application of loads such as ground shaking from nearby seismic events. Because of the subsurface conditions experienced above groundwater, it is estimated that seismic settlement of unsaturated soil at the subject property would be less than one-quarter inch (Kleinfelder 2007). This indicates that minimal remedial grading and/or project-specific foundation design would be necessary.

Lateral spreading is the horizontal movement or spreading of soil toward an open face such as a streambank, the open side of fill embankments, or the sides of levees. The potential for failure from lateral spreading is highest in areas where the groundwater table is high, where the alluvial deposits are relatively soft and recent, and where

creek banks are relatively high. Because the subject property and surrounding areas have generally insignificant topographic relief and no incised water bodies are nearby, the potential for lateral spreading is considered remote (Kleinfelder 2007).

Tsunami and Seismic Seiches

Earthquakes may affect open bodies of water by creating seismic sea waves and by creating seiches. Seismic sea waves, often called "tidal waves" and/or "tsunami," are caused by abrupt ground movements (usually vertical) on the ocean floor in connection with a major earthquake. Because of the distance of the project site from the ocean (i.e., greater than 20 miles), seismic sea waves would not be a factor.

A seiche is a sloshing of water in an enclosed or restricted water body such as a basin, river, or lake. A seiche is caused by earthquake motion resulting in sloshing that can occur for a few minutes or several hours. In 1868, for example, an earthquake along the Hayward Fault in the San Francisco Bay area is known to have generated a seiche along the San Joaquin River.

The project is approximately 5 miles from the San Joaquin River and is located in an area of flat topography. A high percentage of Sacramento–San Joaquin Delta levees are subject to overtopping and subsequent failure, and seiches in the Sacramento–San Joaquin Delta could be damaging to the areas protected by those levees. Although the San Joaquin River is lined by levees in the region, the risk of damage to the project site from a levee break is minimal and the risk of seiche is considered low because the project site has been determined to be located outside a 500-year floodplain. Specifically, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (No. 0601060615A dated December 16, 2005) identify the project site as Zone X, which is defined as an area with 0.2% annual chance of flood, an area of 1% chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood.

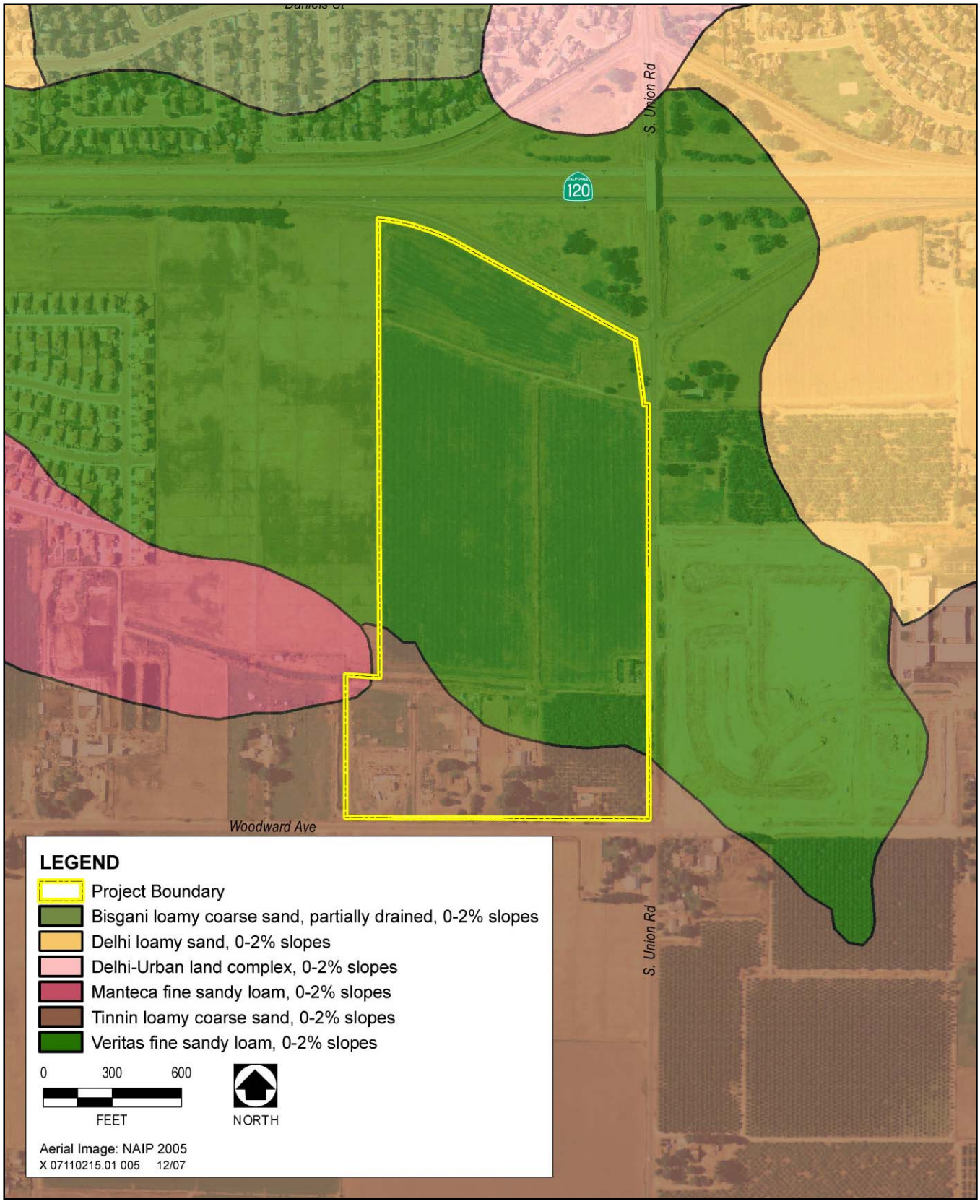
SOIL RESOURCES

Soil properties can affect the construction and maintenance of roads, building foundations, and infrastructure. Among these properties are permeability, shrink-swell potential, water retention capacity, and corrosion potential.

Subsurface data from Kleinfelder (2007) indicate that the majority of the subject property is underlain by loose to medium-dense silty sand to a depth ranging from 2½ to 16½ feet below the surface. These soils are underlain by highly interbedded strata of medium-stiff to hard, clayey silt, sandy silt, sandy clay and very loose to dense, fine to coarse-grained, silty sand and relatively "clean" sand to the maximum depths explored (Kleinfelder 2007).

Identification of soil types and their distribution was accomplished primarily through a review of maps provided by the U.S. Soil Conservation Service (now called the Natural Resources Conservation Service [NRCS]). Exhibit 4.7-1 provides a detailed map of the surficial soils in the project area. Table 4.7-2 provides a detailed summary of the physical and chemical characteristics of each soil type identified from the project site. A discussion of soil characteristics is presented below.

Tinnin Loamy Coarse Sand, 0 to 2% slopes—Tinnin loamy coarse sand is a deep, well-drained soil found on alluvial fans and is derived from granitic rock sources. The soil grades downward from a grayish-brown loamy coarse sand to a pale-brown mottled loamy coarse sand at depths of 75 inches. Runoff is slow and there is only a slight hazard of water erosion. However, the wind erosion hazard is severe. This soil type has a low shrink-swell potential. The extremely rapid permeability rate makes this soil unsuitable for septic systems. The primary use of this soil type in San Joaquin County is irrigated crops, orchards, or vineyards.



Source: NRCS 2005

Soils Map **Exhibit 4.7-1**

Table 4.7-2
Soil Mapping Unit Descriptions

Soil Series Name	Depth (inches)	USDA texture	Shrink-Swell Potential	Permeability (in/hr)	Erosion Factors[1]		Wind Erodibility Group[2]	pH	Plasticity Index[3]
					K	T			
Tinnin	0–28	Loamy coarse sand	Low	6.0–20	0.17	5	2	6.1–7.8	NP
	28–53	Loamy coarse sand, loamy sand	Low	6.0–20	0.17			6.1–7.8	NP
	53–75	Loamy coarse sand, loamy sand, sand	Low	6.0–20	0.17			6.6–8.4	NP
	54–70	Cemented	—	—	—			—	—
Veritas	0–15	Fine sandy loam	Low	2.0–6.0	0.28	3	3	7.4–8.4	NP-10
	15–54	Sandy loam, fine sandy loam	Low	2.0–6.0	0.32			7.4–8.4	NP-10
	54–70	Cemented	—	—	—			—	—

[1] K is a measurement of relative susceptibility to sheet and rill erosion by water. It ranges from 0.10 to 0.64, with lower values representing a lower susceptibility to erosion.
T represents soil loss tolerance, which is defined as the maximum rate of soil erosion (wind and water) without reducing crop production or environmental quality. Values ranges from 1 to 5 tons of soil loss per acre per year, with 5 representing soils less sensitive to erosion.

[2] A measure of the susceptibility of soil to movement by wind. Groups are 1–8, with 8 being soil types not subject to soil blowing because of coarse fragments on the surface or surface wetness.

[3] Soils with a high plasticity index have a wide range of moisture content in which the soil performs as a plastic material. Larger PI values (e.g. 20-40) indicate highly plastic soils. NP=Not plastic

— Either not measured or not applicable.

Source: NRCS 1992

Veritas Fine Sandy Loam, 0 to 2% slopes—This moderately well-drained soil is found on low fan terraces, and formed from alluvium derived from mixed rock sources. The soil grades downward from a brown, fine sandy loam to a grey, cemented hardpan at a depth of approximately 70 inches below the surface. A hardpan is present at depths of 40 to 60 inches below the surface. Water may be perched above the hardpan following winter storm events, and during years of heavy rainfall, the soil is subject to periodic flooding. Runoff is slow and there is only a slight hazard of water erosion. Wind erosion poses a moderate hazard. This soil type has a low shrink-swell potential. The primary use of Veritas fine sandy loam in San Joaquin County is irrigated crops, orchards, or vineyards.

Shrink-Swell Potential

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture; soils swell when wet and shrink when dry. If the shrink-swell potential is rated moderate to high, volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities if they are not designed and constructed appropriately to resist the changing soil conditions. Soils with high clay content tend to be most affected by shrink and swell. The potential for soil to undergo shrink and swell is greatly enhanced by the presence of a fluctuating, shallow groundwater table. Volume changes of expansive soils can result in the consolidation of soft clays following the lowering of the water table or the placement of fill. Mapped soil types at the project site (see Exhibit 4.7-1) are not considered to be expansive because of their low clay content and low plasticity index (NRCS 1992).

Seepage and Soil Moisture

Groundwater at the subject property is an average of approximately 8½ to 14 feet below ground surface (Kleinfelder 2007). Soil permeability is moderate to rapid, but surface runoff is very slow, combining with high groundwater levels during the winter and spring months, which could create saturated surface soil conditions and high soil-moisture content (NRCS 1992).

Corrosion Potential

Corrosion is the gradual degradation of materials through electrochemical processes resulting from the interaction between chemical properties of the soil (e.g., pH, resistivity, sulfate and chloride concentrations) and metal, concrete, or stone. Based on sandy soil encountered in soil borings taken at the subject property, chloride and sulfate concentrations in the soil are determined to be at noncorrosive levels. However, minimum resistivity tests conducted on the same soil samples indicted the soil has a mildly corrosive effect on buried metal objects (Kleinfelder 2007).

4.7.2 REGULATORY SETTING

FEDERAL EARTHQUAKE HAZARDS REDUCTION ACT

In October 1997, the U.S. Congress passed the Earthquake Hazards Reduction Act to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA) by refining the description of the agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through postearthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates FEMA as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and USGS.

CALIFORNIA BUILDING STANDARDS CODE

The California Building Standards Commission (BSC) is responsible for coordinating, managing, adopting, and approving building codes in California. In July 2007, the BSC adopted and published the 2006 International Building Code as the 2007 California Building Standards Code (CBC). This new code became effective on January 1, 2008, and updated all the subsequent codes under the California Code of Regulations Title 24. The State of California provides minimum standards for building design through the 2007 CBC (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The 2007 CBC replaces the previous "seismic zones" (assigned a number from 1 to 4, where 4 required the most earthquake-resistant design) with new Seismic Design Categories A through F (where F requires the most

earthquake-resistant design) for structures designed for a project site. With the shift from seismic zones to seismic design, the CBC philosophy has shifted from "life safety design" to "collapse prevention," meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards. (The Kleinfelder [2007] geotechnical report prepared for the proposed project used the earlier seismic zone method, which was appropriate at the time since it was in effect at the time that report was prepared.)

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity and requires addressing mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the 2007 CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

CALIFORNIA SEISMIC HAZARDS MAPPING ACT

The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code Section 2690–2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the California Legislature to mitigate the hazard of surface faulting to structures. The main purpose of the act is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State Geologist. Before a project can be permitted in a designated Alquist-Priolo Fault Study Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

In California, the State Water Resources Control Board (SWRCB) administers the federal Environmental Protection Agency's promulgated regulations (55 Code of Federal Regulations 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Eliminations System (NPDES). In turn, the SWRCB's jurisdiction is administered through Regional Water Quality Control Boards. Pursuant to these federal regulations, an operator must obtain a General Permit under the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or greater. The General Permit requires the implementation of best management practices (BMPs) to reduce pollutant loads into the waters of the state and

measures to reduce sediment and erosion control. In addition, a storm water pollution protection plan (SWPPP) must be prepared. The SWPPP addresses water pollution control during construction. SWPPPs require that all stormwater discharges associated with construction activity, where clearing, grading, and excavating results in soil disturbances, must by law be free of site pollutants.

CITY OF MANTECA GENERAL PLAN

Geologic and Seismic Safety

The Safety Element of the *City of Manteca General Plan 2023* (City General Plan) outlines goals and policies associated with geology and soils. The following policies relate to the project:

- **Policy S-P-1:** The City shall require preparation of geological reports and/or geological engineering reports for proposed new development located in areas of potentially significant geological hazards, including potential subsidence (collapsible surface soils) because of groundwater extraction.

- **Policy S-P-2:** The City shall require new development to mitigate the potential impacts of geologic hazards through Building Plan review.

- **Policy S-P-3:** The City shall require new development to mitigate the potential impacts of seismic induced settlement of uncompacted fill and liquefaction (water-saturated soil) because of the presence of a high water table.

- **Policy S-P-5:** The City shall ensure that all public facilities, such as buildings, water tanks, and reservoir, are structurally sound and able to withstand seismic shaking and the effects of seismically induced ground failure.

The Safety Element of the City General Plan further states that all new development shall comply with the current CBC requirements and with California Health and Safety Code Section 19100 et seq. (Earthquake Protection Law).

Soils and Erosion Control

The Resource Conservation Element of the City General Plan contains the following policies related to the project:

- **Policy RC-P-10:** Minimize soil erosion and loss of topsoil from land development activities, wind, and water flow.

The Resource Conservation Element of the City General Plan further states that all new development shall comply with the current CBC requirements for construction standards for specific soil types and with CBC Chapter 70 regulating grading activities including drainage and erosion control. The City requires site-specific land management and development practices for proposed development projects, including appropriate mitigation measures to avoid or reduce erosion.

GENERAL PERMITS

The City of Manteca (City) regulates grading and construction through General Permits for construction activity that disturbs a land totaling 1 acre or more, or less than 1 acre but part of a larger common plan of development. In addition, the City requires all new development to comply with the requirements of the current version of the UBC that stipulate building structural material and reinforcement.

4.7.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Evaluation of potential geologic and soil impacts was based on a review of documents pertaining to the project site (i.e., the *San Joaquin County General Plan 2010* [San Joaquin County 1992], the *City of Manteca General Plan 2023* [City of Manteca 2003], and the geotechnical report prepared by Kleinfelder [2007]), and review of geologic maps and published and unpublished geologic literature. Impacts related to geology and soils that would result from implementation of the proposed project were identified by comparing existing data and environmental documents.

THRESHOLDS OF SIGNIFICANCE

The project would result in significant geology and soils impacts if it would:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - 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;
  - strong seismic ground shaking;
  - seismic-related ground failure, including liquefaction; or
  - landslides;
- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable, or that would become unstable as a result of a project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, or liquefaction or collapse;
- be located on expansive soil, as defined in Table 18-1-B of the UBC (1997), creating substantial risks to life or property;
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water; or
- directly or indirectly destroy a unique paleontological resource or site.

IMPACT ANALYSIS

The project would have no impact associated with the following issues, and these issues are not analyzed further in this EIR:

- **Fault Ground Rupture:** There are no known active faults crossing the project site and the site is not located in an Alquist-Priolo Fault Study Zone; therefore, fault ground rupture is unlikely.
- **Landslide:** Because the project site is located on relatively flat terrain and it not located adjacent to any know landslide areas, the risk of landslides is considered negligible for the project site.
- **Tsunamis:** The potential for tsunamis at the proposed project site is considered negligible because of the distance from the San Francisco Bay and the Pacific Ocean.

- **Seiche:** The potential for damaging seiches is considered very low to negligible because of the absence of a deep, large open body of water adjacent to or within the project site.

- **Septic systems:** No septic systems are currently on-site and the proposed project would be served by the City of Manteca's existing wastewater collection and treatment system. The proposed project does not include and would not use septic tanks or alternative wastewater disposal systems.

- **Paleontological Resources:** Geologic mapping (Wagner, Bortugno, and McJunkin 1991) indicates that the project site is underlain by both Holocene-age (11,000 years before present [B.P.] and younger) Dune Sand and the Pleistocene-age (12,000 to 1.8 million years B.P.) Modesto Formation. However, soil borings taken by Kleinfelder (2007) indicate that the project site is underlain by Dune Sand across the project site to a depth of 16 feet below the ground surface (bgs). By definition, an object must be more than 11,000 years old to be considered a fossil, and since project-related earth-moving activities would not occur in depths greater than 16 feet bgs, there would be no impact on paleontological resources. As a result, paleontological impacts of the project are not evaluated further in this DEIR.

- **Mineral Resources:** The project site is not located in an area of known mineral resources, nor are any expected to be encountered during project development (City of Manteca 2003).

IMPACT 4.7-1 Risks to People and Structures Caused by Strong Seismic Ground Shaking. *The project site is approximately 23 miles from the nearest potentially active fault. Structural and nonstructural damage and associated hazards resulting from a seismic event would be a* ***potentially significant*** *impact.*

The nearest potentially active fault is the Great Valley Fault System, approximately 23 miles west of the project site, which is estimated to have a maximum moment magnitude of 6.7.

Seismic activity in the nine-county San Francisco Bay Area (San Andreas, Hayward, and Calaveras Faults) and the Great Valley Fault System could generate strong ground shaking on the project site. Because of this potential fault activity, ground shaking is a hazard for facilities in the San Joaquin Valley. Intensity of the ground shaking would depend on the magnitude of the earthquake, the distance from the epicenter, and the duration of shaking. The damage sustained and the degree of hazard depends on the type of underlying soil and rock, the type of structure and its building materials, and construction quality. The project involves the development of retail space, office space, and restaurant space as well as associated utility improvements. The proposed development would be anticipated to experience at least one major earthquake during the operational lifetime of the project. Strong ground shaking could cause structural damage to buildings, pipelines, and other permanent improvements proposed as part of the project. Furthermore, the geotechnical study was performed according to standards that have been superceded as a result of adoption in 2008 of the revised CBC. Therefore, the potential for structural and nonstructural damage and associated hazards resulting from strong seismic ground shaking would be a **potentially significant** impact.

IMPACT 4.7-2 Risks to People and Structures Caused by Seismic-Related Ground Failure. *Based on the underlying soil conditions in the project area and the shallowness of the groundwater table, construction of the proposed project has the potential to expose people or structures to seismic-related ground failure, including liquefaction and differential settlement. Therefore, this impact is* ***potentially significant****.*

Liquefaction occurs when saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. As the excess pore pressure dissipates, volume changes are produced within the liquefied soil layer which can manifest at the ground surface as settlement of structures, floating of buried structures, and failure of retaining walls. Soil types most susceptible to liquefaction are saturated, loose, sandy soils. According to data generated by Kleinfelder (2007), the majority subsurface soils on the subject property consist of medium-dense silty sand underlain by highly interbedded strata of medium-stiff to hard, clayey silt, sandy silt, sandy clay and very-loose to dense, fine-to coarse-grained, silty sand and relatively

"clean" sand to the maximum depths bored. Some layers (one-half to 3 feet thick) of silty sand and relatively "clean" sand encountered below the water table are susceptible to seismic liquefaction. According to the geotechnical analysis, layers (one-half to 3 feet thick) of silty sand and relatively "clean" sand encountered below the water table would be susceptible to seismic liquefaction in the event of a large magnitude earthquake along the nearest segments of the Great Valley fault. However, the potential for soil venting or other ground surface disruption is low (Kleinfelder 2007).

Given the existing conditions at the project site, if project buildings are not designed or constructed appropriately, a large seismic event could expose occupants of these structures to a substantial risk of loss, injury, or death from seismically-induced liquefaction. For these reasons, this impact is **potentially significant**.

IMPACT 4.7-3 Construction-Related Erosion Hazards. *Based on soil types and topography, excavation and grading of soil could result in erosion during project construction, particularly during periods of strong winds. This impact is* ***potentially significant****.*

Soils at the project site are of Tinnin loamy coarse sand and Veritas fine sandy loam, which have been characterized as having only slight erosion hazards. In addition, the flat topography of the project site would minimize the potential for water erosion during a storm event. However, according to the NRCS, soil types at the project site are subject to a severe hazard from wind erosion, which could result in a loss of topsoil during the spring and summer months (see Table 4.7-2).

Project construction activities would involve excavation and grading of soil which could result in localized erosion during the construction period. Construction activities would remove any vegetative cover and could expose disturbed areas to wind and storm events. The potential loss of soil from construction-related erosion is a **potentially significant** impact.

IMPACT 4.7-4 Risks to People and Structures Resulting from Unstable Soil Conditions. *Soils on the project site have a very low clay content and are rated by the NRCS as either nonplastic (no shrink-swell potential), or of very low plasticity. This impact is* ***less than significant****.*

Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities if they are not designed and constructed appropriately to resist the changing soil conditions. Volume changes of expansive soils also can result in the consolidation of soft clays following the lowering of the water table or the placement of fill.

The project site is underlain by soils in the Tinnin and Veritas series, which have a very low clay content and are rated by the NRCS as either nonplastic (no shrink-swell potential), or of very low plasticity (see Table 4.7-2). Based on this information, there is a low potential for shrink-swell soils at the project site to cause damage to project structures. This impact is **less than significant**.

IMPACT 4.7-5 Risk of Structural Damage Caused by Corrosive Soils. *Project site soils are mildly corrosive to buried metal objects (i.e., metal pipes). This impact is considered* ***potentially significant****.*

The corrosiveness of on-site soils was tested to determine whether the soils could cause damage to buried concrete slabs and foundations and buried metal pipes during the operation of the proposed project. Based on the area and sandy soil encountered, it is anticipated that the chloride and sulfate concentrations in the soil are present at noncorrosive levels. Minimum resistivity tests performed on a composite soil sample indicated that the soil is mildly corrosive to buried metal objects (i.e., metal pipes) (Kleinfelder 2007). Because corrosive soils could cause failures to underground structures over the long term, potentially causing substantial risk to life and property, and because the consulting engineers recommended additional design of corrosion protection systems appropriate for the project, this impact is considered **potentially significant**.

4.7.4 MITIGATION MEASURES

No mitigation measures are necessary for the following less-than-significant impact:

Impact 4.7-4: Risks to People and Structures Resulting from Unstable Soil Conditions.

The following mitigation is recommended for significant and potentially significant impacts:

Mitigation Measure 4.7-1: Risks to People and Structures Caused by Strong Seismic Ground Shaking.

a. Before the start of construction activities and before issuance of a grading permit, a final geotechnical subsurface investigation report shall be prepared by the project applicant(s) for the proposed development and shall be submitted to the City Public Works Department. The final geotechnical engineering report shall be prepared according to the standards in the current version of the CBC adopted at the time, and shall address and make recommendations on the following that shall be implemented by the project applicant(s) for all project phases:

   - seismic design;
   - site preparation;
   - appropriate sources and types of fill;
   - potential need for soil amendments;
   - road, pavement, and parking areas;
   - structural foundations, including retaining wall design;
   - grading practices;
   - erosion/winterization;
   - shallow surface water table;
   - expansive soils/lateral spreading/subsidence;
   - soil corrosivity;
   - unstable soils; and
   - liquefaction.

   In addition to the recommendations for the conditions listed above, the geotechnical investigation shall include further subsurface testing of soil and groundwater conditions (as determined necessary by the geotechnical engineer) and shall determine appropriate foundation designs that are consistent with the CBC. All recommendations contained in the final geotechnical engineering report shall be implemented by the project applicant(s). Special recommendations contained in the geotechnical engineering report shall be noted on the grading plans and implemented as appropriate before construction begins. Design and construction of all new development in all phases of the project shall be in accordance with the CBC. It is the responsibility of the project applicant(s) to provide for engineering inspection and certification that earthwork has been performed in conformity with recommendations contained in the geotechnical report.

b. Before issuance of a grading permit, the approved project design plans and specifications, including grading and foundation plans, shall be reviewed by a soils engineer approved by the City. This review shall be completed to assess whether the recommendations in the geotechnical report (Kleinfelder 2007) are sufficient for construction of the buildings described in the final project design plans. If these measures are deemed insufficient, the geotechnical engineer shall prepare a supplemental site-specific geotechnical report with appropriate recommendations sufficient to ensure the safety of project structures and site occupants.

c. The on-site soils will likely be saturated by rainfall in the winter and early spring months. If the construction schedule requires continued work during the wet months, the City shall require the applicant to consult with a qualified civil engineer and implement any additional recommendations provided, as conditions warrant.

Mitigation Measure 4.7-2: Risks to People and Structures Caused by Seismic-Related Ground Failure.

The applicant shall implement Mitigation Measure 4.7-1, described above, to reduce the risks to people and structures of seismic-related ground failure at the project site.

Mitigation Measure 4.7-3: Construction-Related Erosion Hazards.

a. A grading and erosion control plan shall be prepared by a California-registered civil engineer and submitted to the Manteca Department of Public Works prior to issuance of any grading permits. The plan shall be consistent with the CBC grading requirements and shall include the site-specific grading proposed for the new development. The project applicant shall ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials.

b. BMPs for erosion and siltation prevention, as further described in Chapter 4.9, "Hydrology and Water Quality," of this document, shall be implemented at the project site. The project applicant shall consult with the Central Valley Regional Water Quality Control Board to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, SWRCB statewide NPDES stormwater permit for general construction activity, and any other necessary site-specific waste discharge requirements or waivers. As required under the NPDES stormwater permit for general construction activity, the project applicant shall prepare and submit the appropriate notice of intent (NOI) and prepare the SWPPP and any other necessary engineering plans and specifications for pollution prevention and control. The SWPPP and other appropriate plans shall identify and specify the use of erosion and sediment control BMPs, means of waste disposal, implementation of approved local plans, nonstormwater management controls, permanent postconstruction BMPs, and inspection and maintenance responsibilities. The SWPPP shall also specify the pollutants that are likely to be used during construction that could be present in stormwater drainage and nonstormwater discharges. A sampling and monitoring program shall be included in the SWPPP that meets the requirements of SWRCB Order 99-08-DWQ to ensure that the BMPs are effective.

   Construction techniques shall be identified that would reduce the potential for runoff, and the plan shall identify the erosion and sedimentation control measures to be implemented. Erosion and sediment control measures could include the use of detention basins, berms, swales, wattles, and silt fencing; and covering or watering of stockpiled soils to reduce wind erosion. Stabilization of construction entrances to minimize trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot. The SWPPP shall also specify spill prevention and contingency measures, identify the types of materials used for equipment operation, and identify measures to prevent or clean up spills of hazardous materials used for equipment operation and hazardous waste. Emergency procedures for responding to spills shall also be identified. BMPs identified in the SWPPP shall be used in all subsequent site development activities. The SWPPP shall identify personnel training requirements and procedures that would be used to ensure that workers are aware of permit requirements and proper installation and performance inspection methods for BMPs specified in the SWPPP. The SWPPP shall also identify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP. All construction contractors shall retain a copy of the approved SWPPP on the construction site.

Mitigation Measure 4.7-5: Risk of Structural Damage Caused by Corrosive Soils. The project applicant shall implement Mitigation Measure 4.7-1, described above, to reduce the risks to people and structures from soil corrosivity at the project site.

4.7.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation measures identified above, the project's geology and soils impacts would be reduced to a less-than-significant level because of required completion of site-specific geotechnical studies and implementation of construction and design measures developed in response to the studies. Implementation of these mitigation measures would also make the project consistent with the City's general plan goals and policies related to geology and soils.

4.8 AGRICULTURAL RESOURCES

This section evaluates the environmental impacts of the proposed project on agricultural resources. A description of the existing site characteristics and setting is followed by an analysis focused on the relationship between the project and existing plans and policies, and the project's compatibility with existing on-site and adjacent land uses. Mitigation is recommended to reduce project impacts, where feasible.

4.8.1 ENVIRONMENTAL SETTING

City of Manteca (City) General Plan policies are intended to represent the City's long-term vision for the area. As described in the *City of Manteca General Plan 2023* (City General Plan), most of the remaining agricultural land within the city limits is expected to be converted to urban uses over time. The project site is in agricultural production or is associated with agricultural uses. The City envisions that the project site and surrounding areas would be developed with commercial and retail land uses, based on the urban land use designations approved for the project site as part of the City General Plan. The agricultural setting of the project site and project area is described below, along with the relevant programs that classify, designate, and conserve agricultural resources within California.

SOIL CAPABILITY CLASSIFICATION

The Soil Capability Classification System takes into consideration soil limitations, the risk of damage when the soils are used, and the way in which soils respond to treatment. Soil capability classes range from Class I soils, which have few limitations for agriculture, to Class VIII soils, which are unsuitable for agriculture. Generally, as the ratings of the capability classification system increase, yields and profits are more difficult to obtain.

Soils in the project area consist of Manteca fine sandy loam, Tinnin loamy coarse sand, and Veritas fine sandy loam. Manteca fine sandy loam and Tinnin loamy coarse sand have a Class III capability classification, which indicates that these on-site soils have severe limitations that reduce the choice of plants or require conservation practices, or both. Veritas fine sandy loam has a Class II capability classification, which indicates that this on-site soil has moderate limitations that reduce the choice of plants or that require moderate conservation practices.

FARMLAND MAPPING AND MONITORING PROGRAM

The U.S. Natural Resources Conservation Service (NRCS) developed a system to categorize types of soils by their suitability for agriculture. The California Department of Conservation used these soil categories to map California's farmland. The resulting Farmland Mapping and Monitoring Program (FMMP) was created to provide data for decision makers for use in planning for the current and future use of the state's agricultural lands. The FMMP gives designations to land areas according to their suitability for agricultural production.

As part of the nationwide agricultural land use mapping effort, the NRCS developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability for agricultural production. Suitability included both the physical and chemical characteristics of soils, as well as the actual land use. Important Farmland maps are derived from the NRCS soil survey maps using the LIM criteria and are available by county. Important Farmland maps classify land into one of the following eight categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, Other Land, and Water.

The Important Farmland map for San Joaquin County designates the project site as Prime Farmland and Farmland of Statewide Importance (Exhibit 4.8-1). Prime Farmland is described as farmland that has the best combination of physical and chemical characteristics for the production of crops and has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, in accordance with current farming methods. Farmland of Statewide Importance is described as

"farmland 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 before the mapping date" (FMMP 2008).

Table 4.8-1 shows the amount of farmland in San Joaquin County over a recent 12-year period.

Table 4.8-1
Acreages of Important Farmland in San Joaquin County

Land Use Category	1994	1996	1998	2000	2004	2006
Prime Farmland	434,476	433,134	429,168	419,227	412,550	407,609
Farmland of Statewide Importance	99,148	98,148	96,795	93,739	91,222	89,273
Unique Farmland	47,206	48,759	52,715	59,118	62,535	63,231
Farmland of Local Importance	54,267	53,479	53,682	58,906	57,808	59,957
Total	635,097	633,535	632,360	626,402	624,115	620,070

Sources: FMMP 2006

As shown in Table 4.8-1, the total amount of Important Farmland within San Joaquin County decreased by approximately 15,027 acres, or 2%, between 1994 and 2006. Prime Farmland and Farmland of Statewide Importance has decreased by 26,867 acres and 9,875 acres, respectively. Designation of new areas as Unique Farmland and Farmland of Local Importance has resulted in net increases for these categories between 1994 and 2006.

WILLIAMSON ACT

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agriculture and open space lands by discouraging their premature and unnecessary conversion to urban uses. The act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments that are much lower than normal because they are based on farming and open space uses as opposed to full market value. None of the project site is currently under a Williamson Act contract.

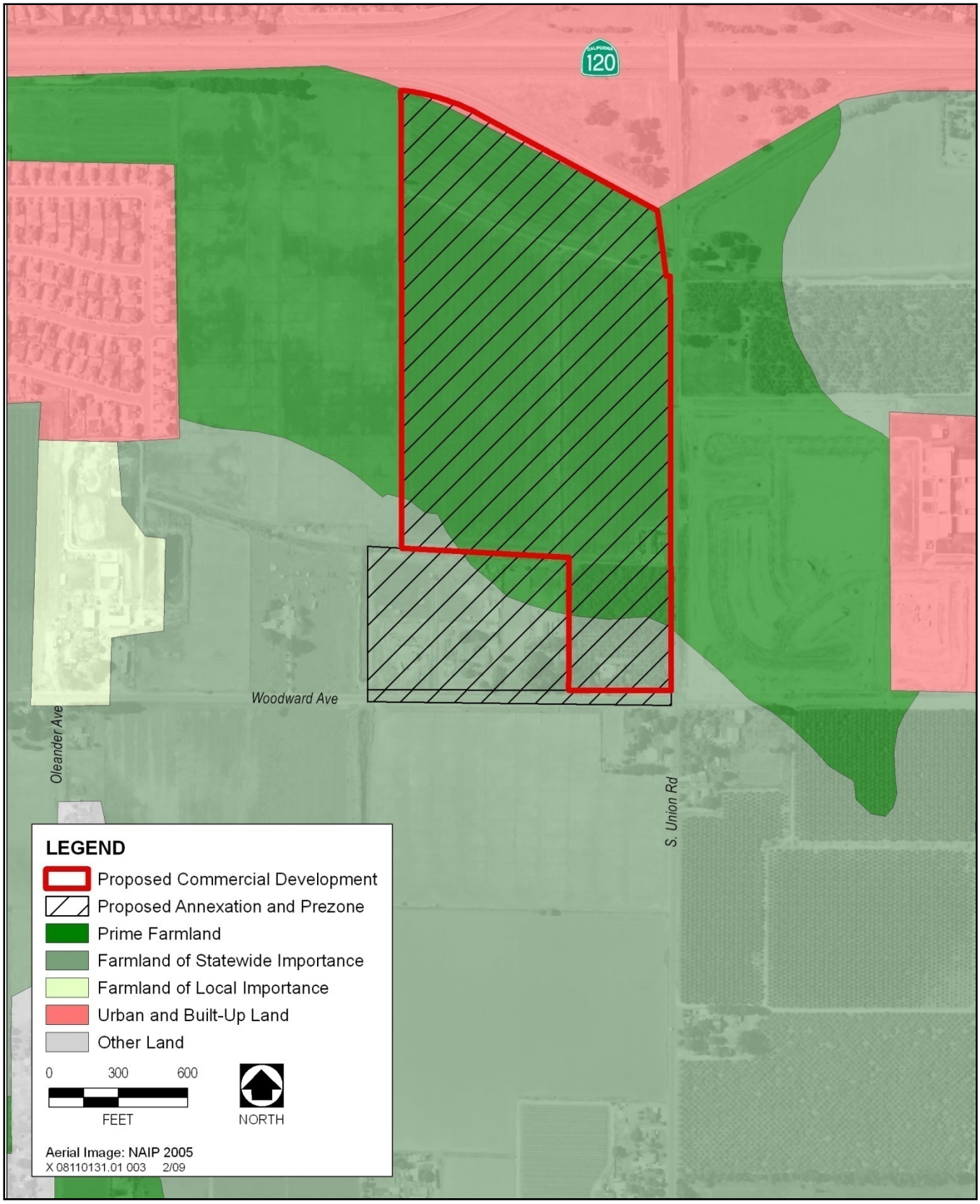
4.8.2 REGULATORY SETTING

California Department of Conservation Farmland Mapping and Monitoring Program

The California Department of Conservation's FMMP is described under "Environmental Setting," above. The approximately 65-acre project site is designated Prime Farmland and Farmland of Statewide Importance.

Williamson Act

The Williamson Act is described above under "Environmental Setting." The project site is not under a Williamson Act contract.



Source: DOC FMMP 2006, San Joaquin County 1999, NAIP 2005, EDAW 2008

Important Farmland **Exhibit 4.8-1**

City of Manteca Right to Farm Ordinance

Chapter 8.24 of Manteca Municipal Code is a "Right to Farm" ordinance intended to protect agricultural productivity in the city. The ordinance states:

> It is the policy of this City to preserve, protect and encourage the use of viable agricultural land for the production of food and other agricultural products. When nonagricultural land uses extend into or approach agricultural areas, conflicts often arise between such land uses and agricultural operations. Such conflicts often result in the involuntary curtailment or cessation of agricultural operations, and discourage investment in such operations. This chapter is intended to reduce the occurrence of conflicts between nonagricultural and agricultural land uses within the City.

City of Manteca General Plan

The City General Plan includes the following policies and implementation programs related to agricultural resources that are relevant to this analysis:

- **Policy RC-P-19:** The City shall support the continuation of agricultural uses on lands designated for urban use, until urban development is imminent.
- **Policy RC-P-21:** In approving urban development near existing agricultural lands, the City shall take actions so that such development will not unnecessarily constrain agricultural practices or adversely affect the viability of nearby agricultural operations.
- **Policy RC-P-25:** The City shall ensure, in approving urban development near existing agricultural lands, that such development will not unnecessarily constrain agricultural practices or adversely affect the economic viability of nearby agricultural operations.
- **Policy RC-P-30:** The City of Manteca will participate in a county-wide program to mitigate the conversion of Prime Farmland and Farmland of Statewide Importance to urban uses.

City of Manteca Agricultural Mitigation Fee Program

In June 2005, the Manteca City Council adopted Ordinance No. 1304, adding Chapter 13.42 to the Manteca Municipal Code, which established the agricultural mitigation fee program. This was done in conjunction with the settlement of the lawsuit regarding the South County Surface Water Project, in which the Cities of Lathrop, Manteca, and Tracy agreed to implement the program to mitigate the loss of Important Farmland due to the conversion to private urban uses. Under the program, the fees collected are used to acquire farmland conservation easements or farmland deed restrictions. The fee is adjusted each year.

4.8.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The focus of this analysis is on impacts on agricultural resources resulting from project implementation. Evaluation of potential agricultural impacts of the project was based on a review of the planning documents pertaining to the project area, including the City General Plan and associated EIR, the California Department of Conservation Important Farmland Map for San Joaquin County, the California Department of Conservation Farmland Conversion Reports, the *San Joaquin County Multi-species Habitat Conservation and Open Space Plan*, consultation with appropriate agencies, and field review of the project site and surroundings.

THRESHOLDS OF SIGNIFICANCE

The project would result in significant agricultural impacts if it would:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use;
- involve other changes in the existing environment which, because of their location or nature, could result in conversion of farmland to non-agricultural use; or
- result in conflicts with surrounding agricultural operations.

No lands on the project site are subject to a Williamson Act contract. Therefore, this issue is not discussed further in this analysis.

IMPACT ANALYSIS

IMPACT 4.8-1 **Direct Conversion of 48.5 Acres of Important Farmland to Nonagricultural Urban Use.** *Implementation of the project would result in the direct conversion of approximately 48.5 acres of Prime Farmland and Farmland of Statewide Importance to nonagricultural urban use. This impact would be* ***significant****.*

The portion of the site that is proposed for commercial retail is agricultural land consisting of row crops and an orchard. The Important Farmland map for San Joaquin County designates the project site as Prime Farmland and Farmland of Statewide Importance. Implementation of the project would result in the direct conversion of important agricultural land to nonagricultural urban use. The total amount of agricultural land that would be converted to urban use by the project (48.5 acres) represents approximately 0.01% of the Important Farmland in San Joaquin County (FMMP 2006).

The City General Plan designates the entire site for General Commercial (GC), Medium Density Residential (MDR), and Low Density Residential (LDR) land uses. These designations indicate the City has planned for conversion of this agricultural land to urban uses, and that the City General Plan does not envision nor designate this area for permanent agricultural uses. The EIR for the City General Plan found that conversion of prime agricultural land, including the project site, to urban uses to be a significant and unavoidable impact with no feasible mitigation. The Land Use Element and Resource Conservation Element of the City General Plan includes policies aimed at protecting or conserving important farmland within the city by promoting and encouraging the continuation of agricultural uses and discouraging the premature conversion of agricultural land to non-agricultural uses. The City General Plan also includes a policy stating that the "City shall support the continuation of agricultural uses on land designated for urban use until development is imminent" (Policy RC-P-19). While the project is consistent with this policy, it would result in the direct conversion of agricultural land to urban uses, permanently removing the land from agricultural production.

As part of adopting the City General Plan, the Manteca City Council adopted findings of fact and a statement of overriding consideration that indicated urban development was of greater benefit to the community than preserving agricultural land within city limits. Although conversion of the project site to urban uses would be consistent with the City General Plan, farmlands are an important resource to the region and direct conversion of Important Farmland to urban land uses would be considered a **significant** impact.

IMPACT 4.8-2 Conflict with Surrounding Agricultural Operations. *The proposed project is adjacent to active agricultural parcels located to the west, south, and east. Agricultural operations adjacent to urban development typically result in potential land use conflicts (e.g., increased dust generation, noise from farming equipment, odors from fertilizer applications) and these potential adverse interfaces would be expected to occur adjacent to the project site because this land is in active agricultural use. Therefore, these conflicting activities and uses would result in a* ***potentially significant*** *impact.*

The project area currently includes active agricultural operations located to the west, south, and east of the project site, and a nearby residential subdivision located to the west. Implementation of the project would contribute to the alteration of the natural or cultivated setting in the project area to developed urban uses. Implementation of the proposed project would result in the placement of urban land uses adjacent to land that currently supports agricultural operations. Agricultural-urban interfaces could result in the potential for long-term conflicts between agricultural activities and adjacent urban land uses. Specifically, agricultural land in active production is located adjacent to the western boundary of the project site. Agricultural lands located to the east and south are separated from the project site by South Union Road and Woodward Avenue, respectively, which would act as a buffer between urban development on the project site and agricultural operations.

Agricultural-urban interfaces generally result in the potential for conflicts between agricultural practices and adjacent landowners. Pesticide application, generation of dust and noise from farm equipment, and roadways shared with farm trucks and tractors are common sources of these conflicts. Farmland owners may themselves suffer increased incidence of trespass, vandalism, and theft. In most instances, potential long-term conflicts between the proposed project and adjacent agricultural operations located to the west are anticipated to be minimal.

Because adjacent agricultural operations located to the east and south of the project site are buffered (i.e., South Union Road, Woodward Avenue) from the project site, implementation of the proposed project would not conflict with these agricultural operations. The area surrounding the project site is undergoing a transition from agricultural/rural land uses to an urban environment. This transition is already affecting the adjacent agricultural operations where an existing residential subdivision borders the western boundary of the agricultural operations. The timing for full urbanization of all surrounding properties is not known. Therefore, until the surrounding area builds out, implementation of the proposed project could result in **potentially significant** conflicts with adjacent agricultural operations.

4.8.4 MITIGATION MEASURES

The following mitigation is recommended for the potentially significant and significant impacts.

Mitigation Measure 4.8-1: Direct Conversion of 48.5 Acres of Important Farmland to Nonagricultural Urban Use.

The project applicant shall pay the required City of Manteca agricultural mitigation fee to help offset the conversion of Important Farmland. Consistent with Chapter 13.42 of the Manteca Municipal Code, an agricultural mitigation fee shall be assessed for every acre of Important Farmland that would be developed as part of the proposed project, and shall be provided to the City. Under the City's program, the fees collected would be used to acquire farmland conservation easements and/or farmland deed restrictions. Consistent with goals of the City's Right-to-Farm ordinance, this mitigation measure would help reduce the occurrence of conflicts between nonagricultural and agricultural land uses caused by development pressures, by preserving agricultural lands located within the project vicinity.

Implementation of this mitigation measure would substantially lessen significant impacts associated with the conversion of 48.5 acres of Important Farmland on the project site, by funding conservation easements that would provide assistance to the public and private sectors in protecting other farmland from the pressures of development. The agricultural mitigation fee would be used to specifically purchase farmland easements and/or

farmland deed restrictions to partially offset project impacts; nonetheless, 65 acres would still be lost. In addition, no net new farmland would be made available nor would productivity of existing farmland be improved as a result of this mitigation measure. Therefore, full compensation for total losses of Important Farmland would not be achieved. No other feasible mitigation is available. Impact 4.8-1 ("Direct Conversion of 48.5 Acres of Important Farmland to Nonagricultural Urban Use") would remain significant and unavoidable after mitigation.

Mitigation Measure 4.8-2: Conflict with Surrounding Agricultural Operations.

The project applicant shall prepare an agricultural conflict management plan that identifies specific measures that would be implemented to minimize, to the maximum degree possible, potential conflicts with adjacent agricultural operations. At a minimum, the plan shall identify (1) the properties adjacent to the project site that would be in active agricultural production at the time the first occupancy permit is issued, (2) the type of farming operations that would occur at these properties, and (3) the specific measures that would be implemented to minimize potential conflicts. These measures could include, but are not limited to, the posting of signs at regular intervals determined by the City to deter trespassing, posting of "No Parking" signs along the frontage of adjacent agricultural properties, installation of fencing on the project site, and posting of signs warning drivers of the potential for farm vehicle traffic. The project applicant shall coordinate with the City and adjacent landowners regarding the placement of signs. All identified measures shall be in place prior to issuance of the first occupancy permit.

While this measure would substantially reduce the potential for conflicts between urban and agricultural land uses, it would not eliminate the impact and some potential conflicts could remain. No other feasible mitigation is available to reduce this impact. Therefore, for purpose of CEQA, this impact would remain significant and unavoidable after mitigation.

4.8.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Although the above mitigation would substantially reduce the project's agricultural resource impacts, implementation of these measures would not eliminate the project's overall Important Farmland impacts (Impact 4.8-1) or conflicts between urban and agricultural land uses (Impact 4.8-2) to a less-than-significant level. Therefore, these impacts would remain significant and unavoidable.

4.9 HYDROLOGY AND WATER QUALITY

This section analyzes the hydrology and water quality conditions of local waterways on and near the project site and the project's potential impacts on these local waterways. This evaluation uses existing information from previously completed documents that address water resources in the project vicinity, including the following:

- *City of Manteca General Plan Background Report* (City of Manteca 1988a),
- *Draft Environmental Impact Report for the City of Manteca General Plan 2023* (City of Manteca 2003a),
- *City of Manteca Storm Drain Master Plan* (City of Manteca 2006a),
- *City of Manteca 2003 Storm Water Management Program* (City of Manteca 2003b),
- *City of Manteca 2005 Urban Water Management Plan* (City of Manteca 2005), and
- *Union Commercial Water Supply Assessment Memorandum* (City of Manteca 2006b).

The results of these reports are summarized in this section. Copies of these reports are available for review at the City of Manteca Community Development Department, 1001 W. Center Street, Manteca, California. The 2006 *Union Commercial Water Supply Assessment Memorandum* is included as Appendix F of this EIR.

4.9.1 ENVIRONMENTAL SETTING

HYDROLOGY AND DRAINAGE

Surface Hydrology

The project study area occupies approximately 65 acres of land in the Central Valley within the central portion of San Joaquin County in the southwestern portion of the City of Manteca (City). Existing ground slopes in the area are relatively flat, with an elevation of approximately 28 feet above mean sea level. Average annual rainfall on the project site is approximately 14 inches, with most of this rain occurring between November and March (City of Manteca 2005: 3–4).

The project site is located in an inundation area for three dams located within the Manteca vicinity. The project site could be subject to flooding if the Tulloch Dam (located 37 miles east), San Luis Dam (located 46 miles south), or New Melones Dam (located 42 miles east) failed (City of Manteca 1988a:IX-13). The California Government Code (Section 8589.5) requires local jurisdictions to adopt emergency evacuation procedures for populated inundation areas. A Dam Failure Plan has been prepared by the local Office of Emergency Services that includes a description of dams, direction of floodwaters, responsibilities of local jurisdictions, and evacuation plans (City of Manteca 2003a:10-2). Because an adequate evacuation plan exists in case of a dam failure that could affect the project site, flooding issues related to dam failure will not be discussed further in this Draft EIR.

The project site is located on relatively flat land with no drainages traversing the site. Major drainages in the project vicinity include Lone Tree Creek approximately 7 miles to the north, the Stanislaus River approximately 6 miles to the south, and the San Joaquin River approximately 3 miles west of the site. The nearest significant body of water is the San Joaquin River. Two agricultural irrigation drainage ditches are located on the southwestern portion of the project site and are potential jurisdictional features under both state and federal regulations (see Impact 4.5-5 in Section 4.5, "Biological Resources"). The project site is not located in the 100-year floodplain, but is located in the 500-year floodplain (City of Manteca 2003a:10-3). According to the Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map for the project area, the project site is located within Zone X, which is defined as "Other Flood Area," or an area of 0.2%-annual-chance-flood (i.e., the 500-year floodplain)(FEMA 2008). The 100-year flood zone nearest the project site is located approximately 1 mile to the southwest. The project site is not located near an open body of water and therefore would not be subject to adverse effects associated with a tsunami; this issue will therefore not be addressed further in this Draft EIR.

The City provides storm drainage via a system of gravity storm drain lines that terminate at detention or retention facilities to provide storage to attenuate peak flows. There are currently 32 basins in the City with up to 65 additional basins planned for the future (City of Manteca 2006a: 2-4). Most storm water is pumped into South San Joaquin Irrigation District (SSJID) facilities. There are currently 38 drainage pump stations in the City with an additional pump station planned for each proposed detention basin. The SSJID operates drainage facilities that traverse the city and carry a portion of the city's stormwater drainage. Water in the SSJID drainage system flows west through drains and laterals into the French Camp Outlet Canal (FCOC) located along the western boundary of the city. From Manteca, the FCOC flows north into the French Camp Slough and ultimately drains into the Sacramento–San Joaquin Delta (Delta) northwest of the city.

The storm drainage agreement between the City and the SSJID was re-adopted in February 2006. SSJID Lateral "Ya" and Drain 8 traverse the northern and southern portions of the project site, respectively.

South Drain Subshed

The *City of Manteca General Plan 2023* designates a large 7,680-acre area in south Manteca for development. Containing the project site, the South Drain subshed was planned to serve the drainage needs of this area. The subshed consists of a network of storm drainage facilities that begin north of Yosemite Avenue, run south to State Route (SR) 99, turn west under the highway and the Union Pacific Railroad tracks, and continues west along Woodward Avenue to Airport Way. Stormwater from the early stages of development in the South Drain will be conveyed west along Woodward Avenue and then north to SSJID Drain 8 and the FCOC. The City has adopted a policy for the South Drain area requiring that all stages of development provide 10-year storm drainage protection through the diversion of stormwater runoff to detention facilities before being discharged to a terminal drainage facility. All detention basins and pump stations for the South Drain area would be sized in accordance with City standards (City of Manteca 2006a:3-1–3-4).

Under the *City of Manteca Storm Drain Master Plan* (SDMP) (City of Manteca 2006a: 5-41), drainage from development south of SR 120 (including the project site) will be discharged to the FCOC via Drain 8. To increase storm drainage capacity in the FCOC and to accommodate buildout of the SDMP, culvert improvements are required for FCOC crossings at Louise Avenue, Union Pacific Railroad, Roth Road, and the Drain 8 "Farm Road." The City has planned for these new facilities through the SDMP.

Groundwater Hydrology

The City is located in the Eastern San Joaquin County Groundwater Basin (ESJCGB), a sub-basin of the San Joaquin Valley Groundwater Basin. The Department of Water Resources (DWR) classified this groundwater basin as a basin in a critical condition of overdraft in DWR Bulletin 118-80, *Ground Water Basins in California* (City of Manteca 2005:12).

Groundwater levels historically drop during severe drought periods and recover in subsequent wet periods; however, the Manteca area has experienced a long-term drop in groundwater levels resulting from local groundwater pumping and severe overdraft in the central and eastern portions of the groundwater basin. The City continues to reduce overdraft of groundwater supplies and maintain historical reliability of groundwater resources by limiting groundwater usage to meet the safe aquifer yield for the area, which has been identified as 1 acre-foot per acre per year by the City's Public Works Department Engineering Division (City of Manteca 2006b:3).

The City of Manteca historically extracted groundwater at a rate of approximately 2.4 acre-feet per acre per year. As described below, the City recently began receiving domestic water supplies from the SSJID's South County Water Supply Project (SCSWSP), which conveys surface water to the City for municipal use. These surface water supplies have allowed the City to reduce local groundwater extraction rates. Groundwater extraction rates for the City increased from 4,600 acre-feet in 1975 to 14,933 in 2004. The City relied exclusively on groundwater resources for domestic water supplies during this period (City of Manteca 2005:10-12).

Within the Manteca area, groundwater levels have historically been relatively high as a result of its low topographic elevation and proximity to the San Joaquin River and Delta channels to the west. Groundwater can be influenced by water levels in the San Joaquin River, subsurface groundwater flow from areas of higher elevation to the east, and local irrigation practices. Groundwater recharge can occur as a result of irrigation of agricultural lands and infiltration from streams flowing west out of the Sierra Nevada. Recharge occurs in areas with permeable materials that allow infiltration of water along streams, alluvial fans, and foothill areas (City of Manteca 2003a:10-5).

Local Water Supplies

The City currently provides domestic water to its customers through a network of wells and transmission lines that extract groundwater from underlying aquifers and distribute the water throughout the City. The City also recently began receiving domestic water supplies from the SSJID's SCSWSP, which conveys surface water to the City for municipal use. The SCSWSP is a joint project between SSJID and the cities of Manteca, Lathrop, Escalon, and Tracy to supply treated potable water to these cities. The SCSWSP involves the operation of a new surface water treatment plant near Woodward Reservoir in Stanislaus County and an approximately 36.5-mile water transmission pipeline with pumping facilities to transport treated water to turnouts at each city. The SCSWSP began supplying surface water supplies to the City in 2005 and is expected to provide sufficient surface water supplies to meet the City's future water demands.

Because the proposed project would not extract any groundwater from under the project site for landscape irrigation or other uses, no existing on-site wells would be utilized, and the project would not involve construction of new on-site wells (Readler, pers. comm., 2008). For additional information regarding local water supplies, the SCSWSP, and groundwater pumping, see Section 4.10, "Public Services and Utilities."

WATER QUALITY

Surface Water Quality

Section 303(d) of the federal Clean Water Act (CWA) requires each state to periodically prepare a list of all surface waters in the state for which beneficial uses of the water (e.g., drinking, recreation, aquatic habitat, and industrial uses) are impaired by pollutants. These surface waters include water quality-limited estuaries, lakes, and streams that do not meet state surface water quality standards and are not expected to improve within the next two years.

California's Section 303(d) list, issued by the State Water Resources Control Board (SWRCB), identifies the impaired status of channels in the eastern Delta and the San Joaquin River. "High Priority" listed constituents include Boron, Chlorpyrifos, and Diazinon. Potential sources of pollution for the listed constituents in the basin include agriculture, resource extraction, and other unknown sources. Waters placed on the 303(d) list require preparation of total maximum daily loads, which identify the maximum amount of a pollutant allowed to be released into a water body to not further impair uses of the water, and allocate that amount among various sources.

Groundwater Quality

The quality of the City's groundwater is expected to remain relatively unchanged for at least the next 7 years (City of Manteca 2005:20). Some areas of the City's groundwater basin are subject to saltwater intrusion from the Delta and adverse water quality impacts from infiltration of stormwater runoff from urban and agricultural areas. Saline intrusion is the possible result of excessive groundwater withdrawal from aquifers. The extent of saline intrusion in the Manteca area is not well defined but is known to occur west of the City of Lathrop. Saline intrusion is an important issue related to the reliability of the existing groundwater system as it could result in well abandonment or water treatment to maintain existing water quality.

Several other contaminants have the potential to affect the quality of groundwater for domestic use in the Manteca area. The concentrations of these contaminants (described in greater detail below) have remained relatively stable, but have the potential to increase as a result of groundwater movement (City of Manteca 2005:20–21).

Nitrate

Elevated levels of nitrate (as NO_3), at 30 milligrams per liter or higher, are found at six city wells. If these levels were to increase above the maximum contaminant level (MCL) of 45 milligrams per liter, production would have to stop from the source well and modified with screening of the upper portion of the aquifer where higher concentrations are found. Water treatment could also be employed to address high nitrate levels. The source of the nitrate is believed to be from past agricultural activities in the area.

Arsenic

The MCL for arsenic was lowered from 50 micrograms per liter (µg/l) to 10 µg/l in 2001, and became effective in 2006. Arsenic levels exceed the MCL of 10 µg/l at 12 of the 16 active city wells. Concentrations of arsenic in the wells range from 12 to 19 µg/l. Treatment has been initiated at each well to lower levels to below the MCL, and will be installed in any new wells constructed that exceed the MCL.

Manganese

There is no primary MCL for manganese. The city has one well that exceeds the secondary MCL of 50 µg/l. This well has been installed with a filter to bring it into compliance. Secondary MCLs address the aesthetic characteristics of water (e.g., taste and odor).

Organic Chemicals

Ethylene dibromide (EDB), dibromochloropropane (DBCP), and perchloroethylene (PCE) have been detected at low levels in seven of the city's wells. EDB and DBCP, agricultural chemicals that have been used in the surrounding area in the past, are below the MCL in all but one well, which has been fitted with an activated carbon filter to remove the EDB and DBCP. PCE has been detected at one well at levels below the MCL. Concentrations of EDB and DBCP are expected to decline over time, as they have not been used for 20 years. PCE is also expected to decline, as use of this chemical is more closely regulated.

4.9.2 REGULATORY SETTING

HYDROLOGY

Federal Emergency Management Agency

In 1968, Congress created the National Flood Insurance Program in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. FEMA also issues Flood Insurance Rate Maps that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. FEMA has established the 1-in-100 annual exceedance probability (i.e., 100-year flood event) as a minimum level of flood protection for new development.

Senate Bill 5: 200-Year Flood Protection

Senate Bill (SB) 5 (Chapter 364, Statutes of 2007), signed into law on October 10, 2007, enacts the Central Valley Flood Protection Act of 2008. SB 5 requires DWR and the Central Valley Flood Protection Board (previously known as the State of California Reclamation Board) to accomplish all of the following tasks:

- prepare and adopt a Central Valley Flood Protection Plan by 2012;
- establish 200-year protection as the minimum urban level of flood protection, effective with respect to specific development projects as of 2015 or 2025;
- have DWR produce preliminary maps for 100-year and 200-year floodplains protected by project levees and make them available to cities and counties in the Sacramento and San Joaquin Valleys;
- set deadlines for Central Valley cities and counties to amend their general plans and their zoning ordinances to conform to the plan within 24 months and 36 months, respectively, of plan adoption (i.e., by approximately 2014 and 2015);
- obligate Central Valley counties to develop flood emergency plans within 24 months of plan adoption; and
- propose amendments to the California Building Standards Code by 2009 to reduce the risk of flood damage and increase safety in areas where flood depths for the 200-year flood event are anticipated to exceed three feet.

Beginning in 2015—potentially sooner depending on when the Central Valley Flood Protection Plan takes effect—local governments will be prohibited from entering into any development agreement or approving any entitlement or permit resulting in construction of a new residence in a flood zone unless they can meet one of the following three conditions:

- flood management facilities provide the level of protection necessary to withstand a 200-year flood event;
- the development agreement or other entitlement includes conditions that provide protections necessary to withstand a 200-year flood event; or
- the local flood management agency has made adequate progress on constructing a flood protection system that will result in sufficient protections to withstand a 200-year flood event by 2025.

Sacramento and San Joaquin River Basins Comprehensive Study

The Sacramento and San Joaquin River Basins Comprehensive Study is a joint effort by the State Reclamation Board (currently known as the Central Valley Flood Protection Board) and the U.S. Army Corps of Engineers (USACE), in coordination with federal, state, and local agencies, groups, and organizations in California's Central Valley, to develop a comprehensive plan for flood damage reduction and environmental restoration for the Sacramento and San Joaquin River basins. The comprehensive study is a region-wide planning effort and not a regulatory program; however, consistency with its goals and objectives is important for any project affecting flood control in the Sacramento-San Joaquin River basins. The proposed project site is located in the Lower San Joaquin River Region of the comprehensive study area.

City of Manteca General Plan 2023

The *City of Manteca General Plan 2023* (City of Manteca 2003c:6-11) includes policies to maintain adequate service in the City's drainage system and to protect both surface and groundwater resources from contamination. The following policies from the Public Facilities and Services Element are relevant to this analysis:

- **Policy PF-P-27:** The City shall require the dedication and improvement of drainage detention basins as a condition of development approval according to the standards of the Drainage Master Plan. The responsibility for the dedication and improvement of detention basins shall be based on the prorated share of stormwater runoff resulting from each development.

- **Policy PF-P-28:** Storm drainage systems within new development areas shall include open drainage corridors, where feasible, to supplement or replace an underground piped drainage system. The drainage system would provide for short-term storm water detention, storm water conveyance for storm waters exceeding a 10-year event, storm water quality treatment, bike and pedestrian paths, and visual open space within neighborhoods. The width and length of the corridors would be determined by the stormwater management requirements. The drainage systems would provide a pedestrian connection between parks and access to open space from residential neighborhoods. The neighborhoods would be designed with homes oriented to, rather than backing on the open space corridor.

City of Manteca Storm Drain Master Plan

The City's 2006 SDMP is based on the City's Drainage Design Criteria supplemented by SSJID requirements and standards, San Joaquin County's Improvement Standards, and the County Hydrology Manual. These standards are further supplemented by design practices of other cities and counties and by the *California Stormwater Quality Association Stormwater Best Management Practice Handbook* (City of Manteca 2006a:3-1).

The policies and criteria included in the SDMP are designed to guide and set minimum standards for the design of storm drainage conveyance, detention facilities, and drainage pump stations within the city. Storm drain design must conform to the City's current SDMP and the City's Standard Plans and Specifications. The SDMP requires drainage studies to be submitted and accepted by the City Public Works Department prior to completion of a tentative subdivision or parcel map.

The SDMP requires all new development to provide drainage plans to ensure new projects do not adversely affect adjacent properties, and allow all properties within a given watershed an appropriate means of discharging surface runoff. The City's storm drainage design standards require that a drainage report or drainage designs be prepared for all proposed development projects, regardless of size. The report must include maps showing drainage basins relative to the project and sub-basins within the project, catch basin and inlet locations, and calculations of design runoff before and after subdivision development. Hydraulic calculations for depth of flow and quantity of runoff, pipe sizing, pump stations, and detention/retention basins must be included in the drainage report. In addition, all urban development within the City is required to be protected from flooding.

Under the City's storm drain design criteria, stormwater retention basin volume (V) in acre-feet is determined by the following formula: $V = (C)(A)(R)$, where C is the land use runoff coefficient, A is the contributing area in acres, and R is total rainfall in feet. Total rainfall for urbanized areas is approximately 0.30 feet (City of Manteca 1988b:D-3).

The City's SDMP includes the following drainage requirements and design standards that are relevant to the project:

- All stormwater improvements shall comply with the requirements of the SSJID agreement with the City.

- Operation of stormwater facilities shall comply with SSJID requirements to eliminate uncontrolled inflows to drains and laterals.

- Drawings of any proposed crossing of storm drains discharging to or passing under SSJID drains or laterals must be submitted for approval by SSJID prior to construction.

- Pump stations shall be designed with back up pumps.

- Detention basins and pump stations shall be designed to accommodate 48-hour, 10-year storm flows.
- Pump stations and downstream infrastructure shall be designed to discharge over a 96-hour period.
- Storm drain pipes shall be 12 inches or larger in diameter.
- The City shall assure an adequate level of service in drainage systems to accommodate runoff from existing and projected development.
- Design of storm drain systems within new developments shall consider the use of open drainage corridors where feasible as an alternative to an underground pipe drainage system, as open drainage corridors may provide short-term detention storage and storm water quality treatment.

GROUNDWATER HYDROLOGY

California groundwater law is extremely complicated because of the variety of groundwater rights recognized in the state. Groundwater is classified as either a subterranean stream or percolating groundwater. A subterranean stream exists when the flow of groundwater is confined to a known and defined subsurface channel. Groundwater not flowing as a subterranean stream is classified as percolating groundwater. Subterranean streams are subject to surface water law, which recognizes riparian and appropriative rights, and are regulated by the SWRCB. Percolating groundwater is subject to general court-enforced principles of groundwater law, which recognizes overlying and appropriative rights. This latter category of groundwater can be regulated by ordinances adopted at the local level but is generally not subject to SWRCB regulation or oversight. Groundwater underlying the City of Manteca is classified as percolating groundwater.

WATER QUALITY

Federal Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act of 1972 is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality, and are discussed below.

Water Quality Criteria and Standards

Under federal law, EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: identified designated "beneficial uses" of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. In California, EPA has granted the SWRCB and its nine regional water quality control boards (RWQCB) the authority to identify beneficial uses and adopt applicable water quality objectives.

National Pollutant Discharge Elimination System Permit Program

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge;

prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

In November 1990, the EPA published regulations establishing NPDES permit requirements for municipal and industrial stormwater discharges. Phase 1 of the permitting program applied to municipal discharges of stormwater in urban areas where the population exceeded 100,000 persons. Phase 1 also applied to stormwater discharges from a variety of industrial activities, including general construction activity if the project would disturb more than 5 acres. Phase 2 of the NPDES stormwater permit regulations, which became effective in March 2003, required that NPDES permits be issued for construction activity for projects that disturb between 1 and 5 acres. Phase 2 of the municipal permit system (known as the NPDES General Permit for Small Municipal Separate Storm Sewer Systems [MS4s]) requires small municipal areas of less than 100,000 persons to develop stormwater management programs. The RWQCBs in California are responsible for implementing the NPDES permit system (see additional information below).

Section 401 Water Quality Certification or Waiver

Under Section 401 of the CWA, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the SWRCB to the nine RWQCBs.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Public Law 93-523), passed in 1974, the federal EPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary MCLs. MCLs and the process for setting these standards are reviewed triennially. Amendments to the SDWA enacted in 1986 established an accelerated schedule for setting drinking water MCLs.

The EPA has delegated to the California Department of Public Health (DPH) (formerly the California Department of Health Services) the responsibility for administering California's drinking water program. DPH is accountable to the EPA for program implementation and for adopting standards and regulations that are at least as stringent as those developed by the federal EPA. The applicable state primary and secondary MCLs are set forth in Title 22, Division 4, Chapter 15, Article 4 of the California Code of Regulations. Secondary drinking water standards are established primarily for reasons of consumer acceptance (i.e., taste), rather than for health reasons.

State Water Resources Control Board and Regional Water Quality Control Boards

In California, the SWRCB has broad authority over water quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the state by the federal government under the CWA. Other state agencies with jurisdiction over water quality regulation in California include DPH (for drinking water regulations), the California Department of Pesticide Regulation, the California Department of Fish and Game (DFG), and the Office of Environmental Health and Hazard Assessment.

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Central Valley RWQCB is responsible for the water bodies in the project vicinity.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California's statutory authority for the protection of water quality. Under the act, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. The act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (basin plans). Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWD/WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

Water Quality Control Plan for the Sacramento-San Joaquin River Basins

The basin plan for the Sacramento–San Joaquin River Basins (Basin Plan), adopted by the Central Valley RWQCB in 1998, identifies the beneficial uses of water bodies and provides water quality objectives and standards for waters of the Sacramento River and San Joaquin River basins, including the Delta. State and federal laws mandate the protection of designated beneficial uses of water bodies. Section 13050(f) of the California Water Code defines beneficial uses as "domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves." Additional protected beneficial uses of the San Joaquin River include groundwater recharge and fresh water replenishment.

The Basin Plan contains specific narrative and numeric water quality objectives for a number of physical properties (e.g., temperature, turbidity, and suspended solids), biological constituents (e.g., coliform bacteria), and chemical constituents of concern, including inorganic parameters, trace metals, and organic compounds. Water quality objectives for toxic priority pollutants (i.e., select trace metals and synthetic organic compounds) are included in the Basin Plan and the California Toxics Rule that was adopted in May 2000.

1995 Bay-Delta Water Quality Control Plan

The Central Valley Project (CVP) and the State Water Project (SWP) are currently responsible for maintaining water quality in the Delta to standards established by the SWRCB as stipulated in the 1995 Bay-Delta Water Quality Control Plan (Bay-Delta Plan). Among the various criteria described in the Bay-Delta Plan are numeric objectives for water quality constituents (salinity and dissolved oxygen), numeric operational constraints for the CVP and SWP, a narrative objective to protect salmon, and a narrative objective to protect brackish tidal marshes in Suisun Marsh. The Bay-Delta Plan is the substantive regulatory authority over Delta hydrologic conditions. Compliance with the standards is maintained, in part, by regulating the releases from CVP and SWP reservoirs upstream of the Delta. During certain months of certain years, a major portion of inflow to the Delta is affected by CVP and SWP regulation.

NPDES Permit System and WDRs

The SWRCB and Central Valley RWQCB have adopted specific NPDES permits for a variety of activities that have the potential to discharge wastes to waters of the state. The SWRCB's statewide stormwater permit for general construction activity (Order 99-08-DWQ, as amended) is applicable to all land-disturbing construction activities that would disturb more than one acre. The Central Valley RWQCB's general NPDES permit for construction dewatering activity (Order 5-00-175) authorizes direct discharges to surface waters of up to 250,000 gallons per day for no more than a 4-month period each year. The NPDES permit requires submittal to the Central Valley RWQCB a notice of intent (NOI) to discharge and implementation of best management practices (BMPs)

to minimize those discharges. The Central Valley RWQCB may also issue site-specific WDRs, or waivers to WDRs, for certain waste discharges to land or waters of the state. In particular, Central Valley RWQCB Resolution R5-2003-0008 identifies activities subject to waivers of WDRs and/or WDRs for a variety of activities, including minor dredging activities and construction dewatering activities that discharge to land.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of permanent post-construction BMPs that would remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements. In response to a court decision, the Central Valley RWQCB implemented mandatory water quality sampling requirements in Resolution 2001-046 for visible and nonvisible contaminants in discharges from construction activities.

Water quality sampling is required if an activity could result in the discharge of turbidity or sediment to a water body that is listed as impaired under Section 303(d), or if a release of a nonvisible contaminant occurs. Where such pollutants are known or should be known to be present and have the potential to contact runoff, sampling and analysis is required. NPDES permits require the implementation of design and operational BMPs to reduce the level of contaminant runoff. Types of BMPs include source controls, treatment controls, and site planning measures.

Discharges subject to the SWRCB's NPDES general permit for construction activity must develop and implement a storm water pollution prevention plan (SWPPP). The SWPPP includes a site map and description of construction activities and identifies the BMPs that would be employed to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. A monitoring program is generally required to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of stormwater-related pollutants.

City of Manteca General Plan 2023

The Resource Conservation Element (Water Quality) of the City general plan provides policies to protect both surface and groundwater resources from contamination (City of Manteca 2003c:8-6). The following policies may be relevant to the project:

- **Policy RC-P-12:** Minimize pollution of waterways and other surface water bodies from urban runoff.
- **Policy RC-P-13:** Protect the quality of Manteca's groundwater.

The City's general plan also includes provisions that new commercial development with a significant potential to adversely affect San Joaquin River water quality or groundwater quality shall not be approved; that buffer areas between waterways and urban development shall be maintained to protect water quality and riparian areas; that BMPs shall be utilized to limit urban pollutants from entering water courses; and that compliance with the RWQCB regulations and standards to maintain and improve groundwater quality in Manteca shall be required.

City of Manteca Storm Water Management Program

The City of Manteca *Storm Water Management Program* provides for the City's compliance with Section 402(p) of the CWA for MS4 operators and with General Permit Number CAS000004, Water Quality Order No. 2003-0005-DWQ, issued April 30, 2003 (City of Manteca 2003b:1). In addition, Chapter 6, "Stormwater Quality," of the City SDMP (City of Manteca 2006a) provides for compliance with Section 401(p) of the CWA for MS4 operators and the General Permit. Development within the City is governed primarily by the requirements of Attachment 4 to the General Permit. Attachment 4 provides guidance and design standards required to achieve stormwater quality objectives. In addition to receiving water limitations, the guidance standards state that discharges shall not cause or contribute to an exceedance of water quality standards contained in a Statewide Water Quality Control Plan, the California Toxics Rule, or the San Joaquin River Basin Plan.

4.9.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The environmental analysis for hydrology and water quality was based on documents and plans prepared for the project site, and other sources including the *City of Manteca General Plan 2023 Draft EIR* (City of Manteca 2003a) to the degree it was applicable to the project. The project's hydrology and water quality effects were compared to environmental baseline conditions (i.e., existing conditions) to determine impacts.

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines and project area considerations. The proposed project was determined to result in a significant effect related to hydrology and water quality if it would:

- violate any water quality standards or waste discharge requirements, including violating NPDES waste discharge or stormwater runoff requirements, state or federal antidegradation policies, enforceable water quality standards contained in the Central Valley RWQCB Basin Plan or statewide water quality control plans, or federal rulemakings to establish water quality standards in California;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the local groundwater table level;
- substantially degrade water quality;
- place housing within a 100-year flood hazard area as mapped on a federal flood hazard boundary or Flood Insurance Rate Map or other flood hazard delineation map, or within the 200-year flood zone as shown on the DWR "Best Available Maps" website;
- place within a 100-year flood hazard area structures that would impede or redirect flood flows; or
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

As described above, the proposed project would result in a significant impact if it were to place housing within a 100- or 200-year flood zone. The 100-year flood zone has been the predominant flood protection standard for several decades. However, in response to concerns raised by such events as the devastation caused by Hurricane Katrina in New Orleans in 2005, the California Legislature enacted SB 5 in 2007, which will ultimately require that the Central Valley be protected from a 200-year flood in the future (see Section 4.9.2, "Regulatory Setting"). SB 5 provides for restrictions associated with privately proposed development projects and other projects considered by local agencies. Because the legislature has established that the 200-year level of flood protection is a goal for the Central Valley, this EIR uses the 200-year flood zone as a threshold of significance.

IMPACT ANALYSIS

IMPACT 4.9-1 Temporary Construction-Related Water Quality Effects. *Temporary construction-related ground disturbances on the project site could result in the discharge of stormwater and non-stormwater discharges containing pollutants to nearby drainage systems and ultimately into the San Joaquin River. The discharge of pollutants to local waterways would be a* ***potentially significant*** *construction-related impact on water quality.*

Grading, earth moving, excavation and utility installation, infrastructure development, and building construction would disturb the existing vegetative cover and soil over the entire project site (including the proposed stormwater detention basin area at the western project boundary). Construction activities are anticipated to occur in three phases over an approximately 44-month period. During this period, disturbed portions of the project site would be subject to exposure from wind erosion, rainfall, and winter stormwater runoff events. In particular, construction activities could result in substantial soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from project construction areas as contaminated runoff or direct discharges to drainage channels. Although the project site is relatively flat and the potential for soil erosion is considered low, intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If erosion is uncontrolled, soil materials could cause sedimentation and blockage of nearby drainage channels. Further, compaction of soils by heavy construction-related equipment may reduce the infiltration capacity of soils and increase the potential for runoff and erosion. Consequently, the potential surface water quality impacts on off-site drainage channels from proposed construction activities would be **potentially significant**.

IMPACT 4.9-2 Long-Term Water Quality Effects of Urban Runoff. *The project would convert agricultural land to commercial uses, and thereby change the amount and timing of potential waste discharges in stormwater runoff. Because specifics related to the stormwater drainage system and water quality treatment features that would be constructed to serve the project site are unknown at this time, the storm drain system would have the potential to discharge urban and construction-related contaminants into SSJID and City of Manteca water drainage facilities. Therefore, this would be a* ***potentially significant*** *impact.*

The existing land uses on the project site are agriculture and rural residential. In general, irrigation and stormwater runoff from agricultural lands, including the project site, is not considered to be of high quality and contains a variety of constituents/contaminants in relatively high concentrations. In addition, agricultural runoff is not typically treated prior to discharge. Conversion of agricultural land to urban land uses would alter the types, quantities, and timing of contaminant discharges in stormwater runoff relative to existing conditions. If this stormwater runoff is uncontrolled and not treated, the water quality of the discharge could adversely affect off-site drainage channels and downstream water bodies.

Commercial activities could contribute to water quality degradation through the operation of motor vehicles and the maintenance of landscaping associated with the use of fertilizers, herbicides, and pesticides. In addition, an increase in impervious surfaces would have the potential to increase the volume of runoff discharges from the project site. Runoff from developed uses typically contains contaminants such as oils, grease, fuel, antifreeze, by-products of combustion (e.g., lead, cadmium, nickel, and other metals), nutrients, sediment, and other pollutants. Project implementation could result in discharge of pollutants to downstream water bodies including the San Joaquin River southwest of the project site and the Delta to the northwest.

Stormwater runoff generated on the project site would be collected in the SSJID Drain 8 drainage system and a proposed on-site drainage system. The proposed on-site drainage system would be designed in accordance with the goals and policies of the Public Facilities and Services Element of the City general plan (Policies PF-P-27 and PF-P-28), and would include structural water quality treatment measures consistent with the City's standards and ordinances and as outlined in the City's SDMP. Stormwater would pass through on-site treatment measures (including an on-site detention basin), where it would then be pumped to SSJID and City storm drainage facilities.

However, specific BMPs that would be implemented to remove pollutant constituents from stormwater runoff have not been identified or included as an element of the project. As a result, because it is unknown whether measures would be in place to sufficiently remove pollutants from the project's stormwater, the project could result in **potentially significant** water quality impacts.

IMPACT 4.9-3 Potential On-site and Off-site Flooding Risk from Increased Stormwater Runoff. *Project implementation would increase the area of impervious surfaces on-site, thereby resulting in increased surface runoff and discharge. The project involves construction of a stormwater runoff collection system, including a 20.04 acre-foot drainage detention facility, to provide on-site stormwater discharge collection capacity sufficient to protect the project site during a 48-hour, 10-year storm event and avoid off-site flooding. Although the project involves construction of adequately sized on-site infrastructure to meet near-term storm drainage demands, the long-term stormwater infrastructure needs of the project would be inadequate without contribution to the City's proposed improvements to the South Drain subshed stormwater drainage system. Therefore, this would be a* ***significant*** *impact.*

Implementation of the proposed project would create additional impervious surfaces (e.g., buildings, sidewalks, paved parking areas) on the project site. The additional runoff caused by the increase in impervious surfaces would lead to an increase in localized stormwater runoff compared to existing conditions. If not properly accommodated on the project site, increased stormwater runoff could result in localized flooding on the project site and on adjacent lands. In addition, if stormwater runoff from the project site were discharged in sufficient quantities during severe storm events, lands downstream of the project site could be exposed to greater flooding risk because of increased channel, river, and SSJID drain flows.

Incremental increases in stormwater runoff generated at the project site and discharged to off-site locations could substantially increase flows that could result in flooding if detention facilities are not sized properly and do not limit the discharge rate of stormwater runoff to SSJID facilities. The project's preliminary drainage plans indicate that storm drainage from on-site impervious surfaces would be collected and routed through graded drain inlets to a shared stormwater detention basin located adjacent to the western boundary of the project site (Exhibit 4.9-1).

As described in Appendix G, the project's detention basin would need to provide a total of 13.62 acre-feet of storage capacity. The detention basin would be shared with the adjacent residential development and would provide storage capacity for that development as well. Therefore, the total capacity of the detention basin would be designed to accommodate 20.04 acre-feet of storage (13.62 acre-feet for the project and 4.79 acre-feet for the adjacent residential development, plus 1.63 acre-feet of additional capacity).

The detention basin would be installed during the first phase of project development, and would provide storage to attenuate peak stormwater flows and reduce the potential for downstream flooding. Stormwater from the detention basin would be discharged off-site to SSJID Drain 8 and ultimately the FCOC. Because the proposed detention basin provides more storage capacity than required for the project site (i.e., 13.92 acre-feet), and adjacent residential development (i.e., 4.79 acre-feet), the proposed drainage system would provide sufficient capacity to accommodate project-generated stormwater runoff and would prevent stormwater-related flooding damage on the project site.

The City has identified specific required FCOC and other SSJID storm drain improvements in connection with the proposed project. Construction of a stilling well at the junction of Drain 8 and Drain 8A, with associated improvements to the City's "Supervisory Control and Data Acquisition" (SCADA) system to allow for enhanced monitoring of Drain 8 water levels would be needed as part of the project (Hollander, pers. comm., 2008). In addition, to handle the increment of stormwater discharges from the project site to the FCOC, a proportionate share of the costs to build the required FCOC crossings at Louise Avenue, Union Pacific Railroad, Roth Road, and the Drain 8 "Farm Road" would be needed. Because these improvements are not included as part of the project description for the project, for purposes of CEQA this would be a **significant** impact.

IMPACT 4.9-4 Impacts on Groundwater. *The project would increase demands for domestic water supplies to serve project development. To meet water supply demands, the City of Manteca has a conjunctive use water supply system that draws water from groundwater wells and uses surface water supplied from the SCSWSP. The City's participation in this project eliminated its exclusive reliance on groundwater for water supplies and allows the City to maintain groundwater pumping yields within the sustainable yields of the underlying aquifer. The potential for groundwater overdraft or substantial lowering (i.e., 10 feet or more) of local groundwater levels is not anticipated to occur because these effects are minimized through implementation of the SCSWSP in the City. Therefore, groundwater impacts would be* ***less-than-significant****.*

The project would result in increased demand for water supply. Domestic water supply would be provided by the City of Manteca and would originate from local groundwater resources and surface water resources from the SSJID's SCSWSP. The proposed project would not result in the construction of any on-site water wells or utilize existing irrigation wells for landscape irrigation (Readler, pers. comm., 2008). Project implementation would increase the City's overall demand for domestic water supplies. As such, the project would contribute to the City's continued need to pump groundwater to use conjunctively with available SCSWSP surface water supplies.

Although operation of City groundwater wells could result in minor localized draw down effects (i.e., lowering of the groundwater table) in the area, these effects are minimized through implementation of the SCSWSP water supply system in the City. Groundwater modeling performed for the SCSWSP EIR (SSJID 2000) indicates that over the long-term, groundwater storage and water levels will increase in the SSJID region. The EIR concluded that with implementation of the SCSWSP, the long-term impact on the basin's ground water elevations would be negligible and, therefore, less than significant. Implementation of the proposed project is not anticipated to result in the substantial lowering (i.e., 10 feet or more) of the local groundwater table. In addition, the City general plan identifies the SCSWSP as the primary source of water to supplement groundwater and eliminate over-drafting. The City is also exploring opportunities to reuse reclaimed wastewater from the City's wastewater treatment plant (City of Manteca 2007). Wastewater reuse would further lessen the need to pump groundwater.

The SCSWSP began supplying surface water supplies to the City in 2005 and is expected to provide sufficient surface water supplies to meet the City's water demands. Groundwater wells would remain in place to supplement the City's water supply during dry years and to provide appropriate reliability and redundancy in the City's water supply system. Please refer to Section 4.10, "Public Services and Utilities," for additional details regarding water supply.

Because sufficient surface water supplies (as part of the SCSWSP) are currently available to serve the proposed project (as discussed in Section 4.10, "Public Services and Utilities"), the potential for overdraft of groundwater aquifers is not anticipated to occur with implementation of the project. Furthermore, the proposed project would not result in the construction of any on-site water wells or utilize existing irrigation wells for landscape irrigation. Therefore, the project would result in a **less-than-significant** impact on groundwater resources.

IMPACT 4.9-5 Reduction in Groundwater Recharge. *The project site does not serve as a substantial groundwater recharge area. Therefore, development of the site would result in a* ***less-than-significant*** *groundwater recharge impact.*

The project would be connected to the City's municipal water system, which is supplied by a number of water wells located throughout the community as well as the SCSWSP surface water supply. In addition, the proposed project would not result in the construction of any on-site water wells or utilize existing irrigation wells for landscape irrigation.



Source: Kier & Wright 2008, adapted by EDAW in 2008

On-Site Stormwater Drainage System

Exhibit 4.9-1

The project site does not have streams or alluvial fan conditions that could function as substantial groundwater recharge areas, and thus changes in the site's land use are not expected to affect overall groundwater supplies or recharge rates. Further, agricultural land is south and west of the project site and these agricultural uses would continue to provide limited amounts of groundwater recharge. The *City of Manteca General Plan 2023 Draft EIR* concluded that no areas in the Manteca area provide a substantial source of groundwater recharge (City of Manteca 2003a:10-5). Therefore, implementation of the project is not anticipated to substantially affect groundwater recharge rates in the area, and impacts would be **less than significant**.

IMPACT 4.9-6 Potential for Exposure to the 200-Year Flood (Pursuant to SB 5). *The project site is located in the 500-year flood zone, but is not located within the 100-year or 200-year flood zone. Therefore, the project site would not be exposed to the 200-year flood, and impacts would be less than significant.*

Under SB 5 (Chapter 364, Statutes of 2007), as of 2015 city and county legislative bodies will be prohibited from approving discretionary development projects and ministerial residential projects unless they can make one of three findings about the existing or proposed levels of flood protection within their respective project areas. One such finding (California Government Code, Section 65865.5[a][3]) is as follows:

> The local flood management agency has made adequate progress on the construction of a flood protection system which will result in flood protection equal to or greater than the urban level of flood protection in urban or urbanizing areas or the national Federal Emergency Management Agency standard of flood protection in non-urbanized areas for property located within a flood hazard zone, intended to be protected by the system. For urban and urbanizing areas protected by project levees, the [200-year] urban level of flood protection shall be achieved by 2025.

As described in the discussion of thresholds of significance above, because the legislature has established that the 200-year level of flood protection is a goal for the Central Valley, this EIR is using the 200-year level of flood protection as a threshold of significance.

The 2008 Preliminary Flood Insurance Rate Map (FEMA 2008) indicates that the proposed project site and off-site components of the proposed drainage system are within an area identified as Zone X (other flood area). This is an area of 0.2%-annual-chance-flood, also known as the "500-year" flood zone. Furthermore, DWR has released "best available information" related to property located within areas subject to flooding during 200-year flood events. The preliminary map indicates that, based on best available information, the project would not be located within such an area (DWR 2008). Because the project site is located in an area outside of the 200-year flood zone, the project would not need to provide any additional flood protection in compliance with the provisions of SB 5, and impacts would be **less than significant.**

4.9.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.9-4: Impacts on Groundwater.

Impact 4.9-5: Reduction in Groundwater Recharge.

Impact 4.9-6: Potential for Exposure to the 200-Year Flood (Pursuant to SB 5).

The following mitigation is provided for the potentially significant and significant impacts:

Mitigation Measure 4.9-1: Temporary Construction-Related Water Quality Effects.

The project applicant shall implement Mitigation Measure 4.7-3, "Construction-Related Erosion Hazards."

Mitigation Measure 4.9-2: Long-Term Water Quality Effects of Urban Runoff.

The project applicant shall implement permanent water quality features (BMPs) designed in conformance with standards of the Central Valley RWQCB, the City of Manteca, and SSJID. The applicant shall submit designs for these features to the City prior to issuance of a grading permit. The project applicant shall implement BMPs such as, but not limited to, the following:

a. To address peak stormwater discharge rates, the project applicant shall confirm (in coordination with the City, SSJID, and Central Valley RWQCB) that the proposed 20.04 acre-foot on-site stormwater detention basin is properly sized to accommodate the proposed project.

b. The project shall be designed to minimize, to the maximum extent practicable, the introduction of pollutants of concern that may result in significant impacts, generated from site runoff of directly connected impervious areas, to the storm water conveyance system as approved by the City. Pollutants of concern consist of any pollutants that exhibit one or more of the following characteristics: current loadings or historic deposits of the pollutant are adversely affecting the beneficial uses of a receiving water, elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein, or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna.

c. Project plans shall include BMPs consistent with local codes, ordinances, or other regulatory mechanism to:

   - decrease the potential of slopes and/or channels (e.g., slope of the on-site detention basin and any drainage swales) from eroding and affecting stormwater runoff:
   - convey runoff safety from the tops of slopes and stabilize disturbed slopes;
   - use natural drainage systems to the maximum extent practicable;
   - stabilize permanent channel crossings;
   - vegetate slopes with native or drought tolerant vegetation, as appropriate; and
   - install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction (e.g., USACE and DFG).

d. The project applicant shall provide storm drain system stenciling and signage, where appropriate. Storm drain stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets. The stencil contains a brief statement that prohibits the dumping of improper materials into the stormwater conveyance system. Graphical icons, either illustrating anti-dumping symbols or images of receiving water fauna (such as fish), are effective supplements to the anti-dumping message. All storm drain inlets and catch basins within the project area shall be stenciled with prohibitive language (e.g., NO DUMPING – DRAINS TO RIVER) and/or graphical icons to discourage illegal dumping.

e. Where proposed project plans include outdoor areas for storage of materials that may contribute pollutants to the stormwater conveyance system, the following structural or treatment BMPs shall be implemented:

- materials with the potential to contaminate storm water shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the stormwater conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs;

- the storage area shall be paved and sufficiently impervious to contain leaks and spills; and

- the storage area shall have a roof or awning to minimize collection of storm water within the secondary containment area.

f. To minimize the off-site transport of pollutants from parking areas, the applicant shall implement stormwater BMPs, such as bioretention areas in landscaping or any swale areas (to the maximum extent feasible), to infiltrate or treat runoff.

Implementation of nonstructural BMPs, through various public education and outreach programs maintained by the City under the municipal NPDES stormwater permit, would also serve to limit the types, amounts, and likely discharges of urban runoff into stormwater.

Mitigation Measure 4.9-3: Potential On-Site and Off-Site Flooding Risk from Increased Stormwater Runoff.

The project site is located in the South Drain subshed, and will discharge stormwater to the FCOC via SSJID Drain 8. Although the project involves construction of adequately sized on-site infrastructure to meet storm drainage demands, the City has identified off-site infrastructure that is needed to accommodate build-out of the area south of SR120, in accordance with the 2006 SDMP.

As part of the project, the project applicant shall construct a stilling well at the junction of Drain 8 and Drain 8A, with associated improvements to the City's "Supervisory Control and Data Acquisition" (SCADA) system to allow for enhanced monitoring of Drain 8 water levels as part of the project. This will accommodate near-term discharge of project stormwater.

To ensure adequate long-term drainage capacity for the project's stormwater flows certain culvert crossings along the FCOC are required to be improved as identified in the 2006 SDMP. The project applicant shall pay its fair share costs for construction of these necessary South Drain subshed stormwater improvements; FCOC culvert crossings at Louise Avenue, Union Pacific Railroad, Roth Road, and the Drain 8 "Farm Road". The project applicant shall coordinate with the City of Manteca to determine the project's fair share costs of these identified improvements.

Impacts associated with construction of these SDMP improvements would generally consist of construction-related air (e.g., respirable particulate matter emissions), noise, biological habitat (e.g., foraging habitat, wetlands), and traffic impacts. In general, proposed improvements would be located within existing right-of-ways (e.g., Woodward Avenue, South Union Road) or in areas that are urbanized or would be urbanized at the time these facilities would be constructed. Based on a reconnaissance-level survey of the project area, including areas along Woodward Avenue and Airport Way, similar habitat conditions are present along these roadways as compared to the project site. Therefore, construction of the proposed off-site storm drainage improvements would result in similar environmental impacts as the project. Mitigation recommended for the project would also substantially reduce construction-related impacts associated with this measure. All of the storm drainage improvements associated with the SDMP have been identified and evaluated in the initial study/mitigated negative declaration (IS/MND) adopted for the Storm Drain Master Plan (City of Manteca 2006c), and the IS/MND prepared for the widening of several culverts in the FCOC (City of Manteca 2008). These IS/MNDs indicated that with mitigation, the proposed South Drain and FCOC improvements would result in less-than-significant environmental impacts (City of Manteca 2006c).

4.9.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation measures identified above, the project's hydrology and water quality impacts would be reduced to a less-than-significant level because preparation of a grading and erosion control plan and implementation of BMPs would ensure that urban runoff does not impair water quality in off-site water bodies. Further, adequate storm drainage capacity would be ensured through the payment of fair share costs and construction of necessary infrastructure to serve the project. Implementation of these mitigation measures would also make the project consistent with the City's general plan policies related to water quality (Policies RC-P-12 and RC-P-13).

4.10 PUBLIC SERVICES AND UTILITIES

This section provides an overview of existing public services and utilities for the City of Manteca (City) and the proposed project area, including water supply, wastewater service, solid waste management, electrical service, natural gas service, telephone service, fire protection, and police service. Because the proposed project would not involve the construction of residential structures, it would not require schools or parks. Therefore, these resources are not addressed further in this section. Impacts are evaluated in relation to increased demand for public services associated with the proposed project and actions needed to provide the services and utilities that could potentially lead to physical environmental effects. Stormwater management is addressed in Section 4.9, "Hydrology and Water Quality."

4.10.1 ENVIRONMENTAL SETTING

WATER SUPPLY AND CONVEYANCE

Water is supplied to the City via a system of local groundwater wells and Stanislaus River surface water from the South County Surface Water Supply Project (SCSWSP) The City owns and operates a system of groundwater wells interconnected with a transmission and distribution pipeline. Well depths range from 155 feet to 400 feet, and individual capacities of the operating wells range from 380 gallons per minute (gpm) to 2,300 gpm. The groundwater aquifers underlying the City extend to depths in excess of 600 feet, and the strata slope from the hills east of the City downward to the west. Area groundwater levels are influenced by the proximity of the Sacramento–San Joaquin Delta (Delta) channels to the west. Groundwater recharge comes from irrigation of agricultural lands surrounding the City and infiltration from streams flowing west out of the Sierra Nevada. This recharge occurs in areas with permeable materials that allow filtration of water along streams, alluvial fans, and foothill areas; however, none of these features are present within the City, and there are no notable groundwater recharge areas within the City (City of Manteca 2003). The groundwater basin safe yield was estimated at 1 acre-foot per acre per year; however the basin is currently in a state of groundwater overdraft. The City began receiving surface water from the SCSWSP in 2005 to reduce overdraft and help ensure and more sustainable water supply (City of Manteca 2006).

The *City of Manteca 2005 Urban Water Management Plan* (City of Manteca 2005a) recommends a conjunctive use of surface water from the SCSWSP and groundwater pumped by the City's groundwater wells. Surface water supply would be used as the base supply and groundwater facilities would be used to meet peak water demands. The SCSWSP is a joint effort between the Cities of Manteca, Lathrop, Tracy, and Escalon, and the South San Joaquin Irrigation District (SSJID) to implement a conjunctive use water system for these cities. In 1995, the City, along with the Cities of Lathrop, Tracy, and Escalon, entered into an agreement with the SSJID for surface water delivery to these jurisdictions. The SCSWSP will deliver up to 11,500 acre-foot per year (afy) of treated surface water through 2010 from Woodward Reservoir to turnouts located on Lathrop Road, east of Union, and on West Yosemite Avenue near the City's Wastewater Quality Control Facility (WQCF). A subsequent phase of the project would increase the City's water allocation to 18,500 afy by 2027 (City of Manteca 2003). Construction of a new water treatment plant at Woodward Reservoir and transmission lines to the City's turnouts were completed in 2005, and the City received 6,740 AF from the SCSWSP in 2006. The City's 2005 *Urban Water Management Plan* (UWMP) and *Water Master Plan* (City of Manteca 2005b) provide additional information on water supply and conveyance.

As described in Chapter 3, "Project Description," the proposed project involves construction of 450,000 square feet of commercial retail and restaurant space on approximately 52.4 acres. Prior to the most recent project applications being submitted to the City , the project included a greater amount of square footage of commercial and retail space (total of 545,000 square feet of commercial retail and office space on approximately 53.4 acres known as the Union Commercial project). The previous project proposal resulted in the need to prepare a water supply assessment (WSA) consistent with the requirement of Senate Bill (SB) 610 because the Union Commercial project was a commercial development with more than 450,000 square feet of floor space) (City of Manteca

2006). The WSA was approved by the Manteca City Council on November 6, 2006, by Resolution Number R2006-481, and is included as Appendix F to this EIR. While the project has since been modified, resulting in an overall reduction in the amount of commercial square footage for the development and a slightly lower demand for water, the City has confirmed that the WSA would provide an appropriate analysis of the water demands and projected water supplies for the proposed project. The analysis therein includes an evaluation of water needs over the next 20 years at an assumed 3.4% rate of growth per year as required by the 2005 UWMP, adopted in December 2005. Because the project site is within the City's 2003 general plan Primary Urban Service Area, the 2005 UWMP included development of the proposed project in its water demand projections.

GLOBAL CLIMATE CHANGE AND WATER SUPPLY

In recent years, the scientific consensus has begun to accept that Earth's climate is changing and has broadened to consider increasing concentrations of greenhouse gases, attributable to anthropogenic activities, as a primary cause of global climate change. The United Nations Intergovernmental Panel on Climate Change (IPCC) predicts that changes in Earth's climate will continue through the 21st century and that the rate of change may increase significantly in the future because of human activity (IPCC 2001, 2007). An extensive background on global climate change including modeling and trends is found in Section 5 "Cumulative Impacts."

Today, the issue of global climate change has begun to play an increasing role in scientific and policy debates over multiple issue areas. Of particular concern are the existing and potential future effects of global climate change on hydrologic systems and water management (e.g., domestic water supply, agricultural water supplies, flood control, and water quality). There is evidence that global climate change has already had an effect on California's hydrologic system; for example, historical data indicate a trend toward declining volumes of spring and summer runoff from the Sierra Nevada.

California water planners and managers have been among the first groups in the nation to seriously consider the implications of statewide and regional climate change (rather than global-scale changes) on the reliability and safety of their systems. The California Water Plan (Bulletin 160) first briefly addressed climate change in 1993 (DWR 1993). This analysis has most recently been expanded and refined in the 2005 update of the California Water Plan, which explores a wide range of climate impacts and risks, including risks to water resources (Kiparsky and Gleick 2005, Roos 2005). The 2005 update also describes efforts that should be taken to quantitatively evaluate climate change effects for the next update of the California Water Plan (DWR 2005).

Water Supply Projections

Several recent studies have shown that existing water-supply systems are sensitive to climate change (Wood and Palmer 1997). Many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows as a result of rainfall and snowpack (Kiparsky and Gleick 2005, Cayan et al. 2006). Little work has been performed on the effects of climate change on specific hydrologic basins, though groundwater recharge reduction, higher evaporation, shorter rainfall seasons could be expected (Kiparsky and Gleick 2005). Conversely, rapid or additional winter runoff, however, would be occurring at a time when some basins, particularly in Northern California, are being recharged at their maximum capacity. However, the specific extent to which various meteorological conditions will change and the impact of that change on hydrologic systems are both unknown.

DWR's 2006 report focused on climate change impacts on State Water Project (SWP) operations and on the Delta. The results of that analysis suggest several impacts of climate change on overall SWP operations and deliveries. In three of the four climate scenarios simulated, reservoirs north of the Delta experienced shortages during droughts. Van Rheenen et al. (2004) studied the potential effects of climate change on the hydrology and water resources of the Sacramento–San Joaquin River basin using five PCM scenarios. The study concluded that most mitigation alternatives examined satisfied only 87% to 96% of environmental targets in the Sacramento system, and less than 80% in the San Joaquin system. Therefore, modifications and improvements to system

infrastructure could be necessary to accommodate the volumetric and temporal shifts in flows predicted to occur with future climates in the Sacramento–San Joaquin River basin.

Lund et al. (2003) examined the effects of a range of estimates of climate warming on the long-term performance and management of California's water system. The study estimated changes in California's water availability, including effects of forecasted changes in year-2100 urban and agricultural water demands, using a modified version of the CALVIN model. Some of the main conclusions are summarized as follows:

- Methodologically, it is useful and realistic to include a wide range of hydrologic effects, changes in population and water demands, and changes in system operations in studies of climate change.

- A broad range of climate-warming scenarios show significant increase in wet-season flows and significant decreases in spring snowmelt. The magnitude of effects of climate change on water supplies is comparable to increases in water demand from population growth in the 21st century.

- In Southern California, population growth is expected to be more problematic than climate change. Population growth, conveyance limits on imports, and the high economic value of water in Southern California could lead to high levels of wastewater reuse and substantial use of desalinated seawater along the coast.

- California's water system could economically adapt to all the climate-warming scenarios examined in the study. California can adapt to population growth and global climate change by using new technologies for efficiency of water supply, treatment, and water use; implementing water transfers and conjunctive use; coordinating operation of reservoirs; and improving flow forecasting. The cooperation of the federal, state, regional, and local governments can also be helpful. Even if these strategies are implemented, however, the costs of water management are expected to be high and there is likely to be less "slack" in the system than under current operations and expectations.

Summary of Global Climate Change on Water Supply

As described by several projections, overall, climate change is expected to have a greater effect in Southern California than Northern California. For example, for year 2020 conditions, where optimization is allowed (i.e., using the CALVIN model), scarcity is essentially zero in the Sacramento Valley for both urban and agricultural users, and generally zero for urban users in the San Joaquin and Tulare basins. Rather, most water scarcity will be felt by agricultural users in Southern California, although urban users in Southern California, especially those in the Coachella Valley, will also experience some scarcity. By the year 2050, urban water scarcity will remain almost entirely absent north of the Tehachapi Mountains, although agricultural water scarcity in the Sacramento Valley could increase to about 2% (Medellin et al. 2006).

Based on the conclusions of current literature regarding California's ability to adapt to global climate change, it is reasonably expected that, over time, the state's water system will be modified to be able to handle the projected climate changes, even under dry and/or warm climate scenarios (DWR 2006). Although coping with climate change effects on California's water supply could come at a considerable cost, based on a thorough investigation of the issue, it is reasonably expected that statewide implementation of some, if not several, of the wide variety of adaptation measures available to the state will likely enable California's water system to reliably meet future water demands. For example, traditional reservoir operations may be used, in conjunction with other adaptive actions, to offset the impacts of global warming on water supply (Medellin et al. 2006; see also Tanaka et al. 2006 and Lund et al. 2003). Other adaptive measures include better water-use efficiency practices by urban and agricultural users, conjunctive use of surface water and groundwater, desalination, and water markets and portfolios (Medellin et al. 2006; see also Lund et al. 2003 and Tanaka et al. 2006). More costly statewide adaptation measures could include construction of new reservoirs and enhancements to the state's levee system (CEC 2003). As described by Medellin et al. 2006, with adaptation to the climate, water deliveries to urban centers are expected to decrease by only 1%, with Southern California shouldering the brunt of this decrease.

WASTEWATER CONVEYANCE AND TREATMENT

The City provides sanitary sewer service through a network of gravity and force main sewer lines. Several pump stations are located throughout the City to augment this sewer line network. This conveyance system terminates at the City of Manteca WQCF, located on West Yosemite Avenue northwest of the project site. The WQCF has a current capacity of 9.87 million gallons per day (mgd) and treats an average of approximately 6.5 mgd, with approximately 15% of the wastewater treated conveyed from the City of Lathrop. Treated wastewater (secondary effluent) from the Manteca WQCF is disinfected and then a majority of the wastewater is discharged into the San Joaquin River through a single outfall, from October to March. Wastewater generated during the spring and summer is used as flood irrigation for agricultural purposes on City-owned lands adjacent to the WQCF or is discharged to the San Joaquin River.

The City recently updated its master plans for wastewater treatment and collection. On February 4, 2008, the Manteca City Council certified the EIR for the *City of Manteca Wastewater Quality Control Facility (WQCF) Master Plan Update* and the *City of Manteca Wastewater Collection System Master Plan Update*. These documents update the 1995 Manteca WQCF Master Plan and the 1993 *City of Manteca Sewer System Master Plan*.

The 1993 Master Plan addressed the planning period up to 2014 and concentrated on areas of future growth. The 1993 Plan separated these growth areas into two main sections, divided by Yosemite Avenue, as the North and South Service Areas. The South Service Area was further subdivided into the South (including the proposed project site) and Southwest Sheds. The 1993 Master Plan proposed the South Manteca Trunk Sewer (SMTS) to extend gravity service to areas south of State Route (SR) 120. The SMTS would extend south from Austin Road, west along Woodward Avenue to Airport Way, then north to the Manteca WQCF.

The City's 1995 WQCF Master Plan identified several improvements. The planned expansion process has been divided into four schedules:

- Schedule A, improvements to the northside nitrification facilities including aeration basins, secondary clarifier sludge collection mechanisms, and centrifugal blowers, were completed in 2003.

- Schedule B, improvements to southside facilities and influent pump station, including aerated grit tanks, primary sedimentation basins, and secondary clarifiers, were completed in 2005 and increased the treatment capacity of the WQCF from 7.5 mgd to 9.87 mgd.

- Schedule C, improvements to solids handling facilities, will require the physical expansion of the existing facilities and development of new structures; this has been designed but not constructed. Schedule C improvements are scheduled to begin construction in 2009 and complete construction in 2010.

- Schedule D, development of tertiary filtration and UV disinfection facilities, was completed in October 2007.

The combination of the improvements at the WQCF has resulted in a treatment capacity of 9.87 mgd (average dry weather flow) that is anticipated to support City wastewater treatment requirements for new growth for approximately the next 5 to 10 years. The City has recognized the need to accommodate higher average dry weather flows in the future to accommodate growth planned for in the City's 2023 general plan. As a result, the City prepared the Manteca WQCF Master Plan Update and the Manteca Collection System Master Plan Update, approved in 2006. Facilities recommended in these master plans would eventually expand the capacity of the WQCF to 27 mgd, increase the discharge of wastewater to the San Joaquin River, and extend conveyance pipelines to undeveloped areas south of SR 120. Buildout of the WQCF to 27 mgd, if approved, would occur over the next 10 to 15 years.

Existing sewage lines that would connect to the project site are located along Union Road and Atherton Drive, and would convey wastewater to the WQCF.

SOLID WASTE DISPOSAL

Pick up and disposal of solid waste is provided by the City of Manteca Solid Waste Division. The City provides the following solid waste services: residential, biweekly curbside pickup of compost materials; leaf and Christmas tree pickup; oil collection pickup; commercial recycling; and household hazardous waste collection.

Wastes are transported to the Lovelace Transfer Station. Recyclable materials are stored at this facility, while other solid waste and green waste is transported to the Forward Landfill on Austin Road. At present, the Forward Landfill is permitted to accept 8,668 maximum tons per day (tpd) of solid waste. The landfill has a total capacity of 51 million cubic yards and a remaining capacity of approximately 23.70 million cubic yards. In addition, the Forward Landfill has an estimated closure date of 2020 without future expansion plans (CIWMB 2008a).

ELECTRICITY AND NATURAL GAS

Pacific Gas and Electric Company (PG&E) is responsible for provision of electricity and natural gas to the City and the proposed project area. PG&E delivers approximately 86,179 million kilowatt-hours (kWh) of electricity to its 15 million customers throughout the 70,000-square-mile service area in northern and central California (PG&E 2007). The service area is divided into seven distribution areas, with Manteca located in the Stockton Division of PG&E's Operations, Maintenance, and Construction Area 5.

PG&E is also responsible for the provision of natural gas to the City. Gas is delivered to the city and the proposed project area through portions of PG&E's 48,198 miles of natural gas pipelines.

FIRE PROTECTION

The project site is in the service area of the Manteca Fire Department (MFD). The following information on the MFD was obtained from the department's website (MFD 2008). The MFD's service area covers approximately 60 square miles in southern San Joaquin County and includes three fire stations. The closest fire station to the project area is Fire Station 242, located at 1154 South Union Road, immediately north of SR 120 on Union Road, just north of the project site. Two other fire stations, Station 241 at 290 South Powers Avenue and Station 243 at 399 West Louise Avenue, could provide additional back-up in an emergency. Stations 241 and 243 are located approximately 3 miles from the project site.

The MFD is equipped with three engines, three reserve engines, one rescue unit, one communications trailer, eight staff vehicles, and one pickup truck. The MFD also has plans to purchase a ladder truck in 2009. Additional assistance can be summoned under mutual aid and automatic aid agreements with surrounding cities, the County, and state firefighting agencies.

An important requirement in fire suppression is adequate fire flow, which is the amount of water, expressed in gallons per minute (gpm), available to control a given fire and the duration this flow is available. The total fire flow needed to extinguish a structural fire is determined by a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the California Fire Code. Generally, fire flow requirements for the type of development associated with the proposed project are 2,500 gpm for commercial and 3,500 gpm for industrial development (measured at 20 psi) with a minimum 2-hour duration.

The MFD provides public fire education, fire prevention, organized and efficient response to fires, first response to hazardous materials incidents, and basic level medical response. Medically related responses account for slightly over 50% of all requests for service. To maintain a standard level of care, all fire personnel are trained and certified Emergency Medical Technician-1 (EMT) and EMT-D. The MFD has also adopted an EMT-defibrillation program. This program allows fire personnel to deliver an electrical shock to victims of cardiac arrest while also

performing cardiopulmonary resuscitation. All medical patients in the MFD service area are transported to one of two local hospitals, depending on proximity and available space.

POLICE SERVICES

The Manteca Police Department is a full service law enforcement agency comprised of over 70 sworn staff and 30 civilian support staff. The department is organized into two divisions: Operations and Services. Operations is the largest division of the department and includes all uniformed officers and their support teams. Operations Division units include patrol, traffic, school resource officers, community service officers, special weapons and tactics (SWAT), crisis response team, mounted patrol, canine, gangs, and bomb squad. The Services Division includes all the teams and units that support the police function of the department, including dispatch, records, property and evidence, crime analysis, and animal services. In addition, the department has more than 200 volunteers working with its officers and employees. The department operates out of 1001 West Center Street, approximately 1¼ miles northeast of the project site (Manteca Police Department 2008).

4.10.2 REGULATORY SETTING

SENATE BILL 610/SECTION 10910 OF THE STATE WATER CODE

The State of California passed legislation applicable to the CEQA consideration of larger projects. SB 610 (Section 21151.9 of CEQA, Section 15155 of the CEQA Guidelines, and Section 10910 et seq. of the Water Code) requires the preparation of "water supply assessments" for large developments (i.e., a proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space; a proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space; or a proposed hotel or motel, or both, having more than 500 rooms). These assessments, prepared by "public water systems" responsible for serving project areas (in this case, the City itself), address whether there are adequate existing or projected water supplies available to serve such projects, in addition to existing urban and agricultural demands and other anticipated development in the service area in which the project is located. Where a water supply assessment concludes that insufficient supplies are available, the assessment must lay out the steps that would be required to obtain the necessary supply. The content requirements for the assessment include, but are not limited to, identification of the existing and future water suppliers and quantification of water demand, and supply by source in 5-year increments over a 20-year projection. This information must be provided for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not preclude project approval, but does require a lead agency to address a water supply shortfall in its project approval findings.

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

The California Integrated Waste Management Act (CIWMA) (California Public Resources Code Section 40000 et seq.) is administered by the California Integrated Waste Management Board (CIWMB). CIWMA required cities and counties to reduce their solid waste stream by 50% by 2000 "through source reduction, recycling, and composting activities" (Section 41780). This requires cities and counties to divert by a variety of means a substantial portion of the waste stream that would otherwise go to landfills. The required quantity by which the city and county waste streams must be reduced is calculated by determining a "base year" (Section 40901) and then adjusting the projected total solid waste stream pursuant to the CIWMA (Sections 41780.1 and 41780.2). The countywide Integrated Waste Management Plan (IWMP) requires recycling programs, which are expected to result in a 50% diversion away from landfills, thereby extending the life of landfills.

CITY OF MANTECA GENERAL PLAN

Several elements of the *City of Manteca General Plan 2023* (City General Plan) outline policies associated with public services. The following policies relate to the proposed project:

General

- **Policy ED-I-55:** Collect appropriate fees from new development to provide necessary infrastructure.

Water Supply

- **Policy PF-P-12:** The City shall continue to assess a water development fee on all new commercial, industrial, and residential development sufficient to fund systemwide capacity improvements. The water development fee schedule shall be periodically reviewed and revised as necessary.

- **Policy PF-P-13:** Ensure that all new development provides for and funds a fair share of the costs for adequate water distribution, including line extensions, easements, and plant expansions.

- **Policy PF-I-3:** The City shall require, as a condition of project approval, dedication of land and easements, or payments of appropriate fees and exactions, to help offset municipal costs of expansion of water treatment facilities and delivery systems.

Wastewater

- **Policy PF-P-24:** Ensure that all new development provides for and funds a fair share of the costs for adequate sewer distribution, including line extensions, easements, and plant expansion.

Solid Waste Disposal

Policy PF-P-31: The City will implement and enforce the provisions of its Source Reduction and Recycling Element.

Electricity, Natural Gas, and Telephone Services

- **Policy PF-I-17:** The City will require undergrounding of utility lines in new development, and as areas are redeveloped, except where infeasible for operational reasons.

Fire Protection

- **Policy PF-P-43:** The City shall endeavor through adequate staffing and patrol arrangements to maintain minimum feasible fire response time for fire and emergency calls.

Police Services

- **Policy PF-P-39:** The City shall endeavor through adequate staffing and patrol arrangements to maintain minimum feasible police response times for police calls.

4.10.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

Evaluation of potential public service and utility impacts was based on a review of documents pertaining to the proposed project area, including the City General Plan, *City of Manteca 2005 Urban Water Management Plan, City of Manteca Wastewater Quality Control Facility (WQCF) Master Plan Update, City of Manteca Wastewater Collection System Master Plan Update,* consultation with appropriate agencies, and field review of the project site and surroundings. Impacts on public services and utilities that would result from the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation. The following analysis assumed the project would consist of approximately 450,000 square feet of retail and

restaurant space on approximately on 48.5 acres. The project would be built in three phases and construction is anticipated to begin in fall 2009.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on the State CEQA Guidelines and project area considerations. A public utilities impact is considered significant if implementation of the proposed project would do any of the following:

- create demand beyond available service capacity;
- create demand for wastewater treatment/disposal beyond available service capacity;
- create demand for electrical or natural gas service that is substantial in relation to the existing demands;
- potentially disrupt existing aboveground and underground PG&E utility facilities in the project area;
- exceed wastewater treatment requirements of the Regional Water Quality Control Board;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements; or
- result in a determination by the wastewater treatment provider that 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.

A public services impact is considered significant if implementation of the proposed project would do any of the following:

- result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for:
    - fire protection,
    - police protection, or
    - other public facilities;
- create circumstances where existing services and facilities could not meet established performance standards (i.e., response times, provider per resident ratios);
- generate solid waste beyond the capacity of existing landfills; or
- violate federal, state, or local statues and regulations related to solid waste.

CONSISTENCY WITH THE CITY OF MANTECA GENERAL PLAN

The City General Plan includes a number of policies related to public services and utilities. As described in the impact analyses below, the project would be consistent with policies related to water supply (Policies ED-I-55, PF-P-12, PF-P-13, PF-I-3), wastewater, solid waste, underground utilities, and police service (Policies PF-P-24,

PF-P-31, PF-I-17, and PF-P-39). Also, as described in Impact 4.10-6 below, adequate fire protection staff and facilities are available to serve the site, and the project would be consistent with general plan Policy PF-P-43 related to fire protection response. Therefore, the project would be consistent with the City's public services and utilities policies.

IMPACT ANALYSIS

The project does not include development of new housing. Therefore, the project would not generate students or increase demands for school services or facilities. Because there would not be any additional residents generated by the proposed project, the project would not increase demands on parks or other recreational facilities, and would not result in accelerated physical deterioration of existing recreational facilities. As such, no impacts related to these resources are anticipated, and these issue areas will not be evaluated further in this section.

IMPACT 4.10-1 **Increased Demand for Water Supply, Treatment, Storage, and Distribution.** *Although the project would increase potable and landscape water demands, adequate water supplies (i.e., groundwater and surface water) would be available to serve the proposed project over the long-term. Water would be conveyed to the project site via a water main in Atherton Drive, and distributed throughout the project site via new water distribution lines constructed as part of the project. Because adequate water supply and distribution facilities are available and no new or expanded facilities would be required to serve the project, this impact would be less than significant.*

An SB 610 water supply assessment was prepared for the Union Commercial project in October 2006 (City of Manteca 2006). The Union Commercial project originally envisioned 545,000 square feet of commercial retail and office space on approximately 53.4 acres, and a total water demand of approximately 82,500 gallons per day (gpd). The water supply assessment was not redone for the proposed project because the project as currently proposed estimates a total water demand of slightly less than 78,600 gpd.

The proposed project's water demand would consist of potable and landscape irrigation demands. Using a General Commercial land use water usage rate of 1,500 gpd per acre (City of Manteca 2005b), the total average water demand for the proposed project would be approximately 78,600 gpd (i.e., 1,500 gpd per acre multiplied by 52.4 acres) for potable water and irrigation. The peak potable demand and the peak irrigation demand for the project would not occur at the same time because irrigation would occur at night when the development is unoccupied.

Future water supply for the City is planned to consist of conjunctive use of groundwater from the City's existing and planned municipal wells and surface water deliveries from the SCSWSP. Presently, the City of Manteca can receive up to 11,500 afy of surface water per its water supply agreement with SSJID, which includes provisions to increase the supply to 18,500 afy. Because the project site is located within the City's urban services boundary and the project site is designated for commercial land uses, the City, through its general plan, has planned for water supplies to serve the project. Further, the SB 610 analysis prepared for the slightly larger Union Commercial project (see Appendix F) demonstrates that adequate water supplies would be available to meet the project's long-term water demands.

Water infrastructure needed to support the project has been planned for under the City's *2005 Water Master Plan*. The project would pay its fair-share portion of any needed water distribution facilities through payment of required Public Facility Implementation Plan fees consistent with City General Plan policies for water supply facilities (PF-P-12, PF-P-13, ED-I-55, and PF-I-3). Water for the project would be provided through the conjunctive use of both groundwater from city wells and Stanislaus River surface water from the SCSWSP. The project would construct on-site water infrastructure improvements that would tie into an extension of the 12-inch water main located in Atherton Drive, and the existing municipal water grid system would be extended and connected to the project site.

Based on proposed project water use estimates and consistent with City General Plan policies, existing facilities and proposed water infrastructure improvements would be adequate to serve the project. Therefore, the project's water supply and water distribution facilities impacts would be **less than significant**.

IMPACT 4.10-2 Environmental Impacts Associated with the SSJID SCSWSP. *The proposed project creates a demand for potable water provided by the SCSWSP. According to the EIR prepared for the SSJID SCSWSP, construction and operation of these facilities could contribute to significant impacts for the following issue areas: hydrology, flooding, and water quality; air quality; geology, soils, and seismicity; biological resources; noise; hazardous materials/public health; visual resources; transportation and traffic circulation; public services and utilities/energy; cultural resources; and recreation. The SCSWSP would provide municipal water to the City, including the proposed project. These impacts would be reduced to less-than-significant levels with implementation of the mitigation measures identified in the SCSWSP EIR.*

Because the proposed project is located in the City of Manteca general plan Primary Urban Services Area, land uses associated with the project would create a demand for potable water that would be provided by the SCSWSP. Under contract to the cities of Manteca, Escalon, Lathrop, and Tracy, SSJID constructed Phase I of the SCSWSP with Phase II anticipated to be completed by 2012. The SCSWSP provides treated potable water to the participating cities through construction and operation of a water treatment plant (WTP) and water transmission facilities to deliver treated water. The new WTP is located near SSJID's Woodward Reservoir in Stanislaus County. Water is delivered from the reservoir to the approximately 40-acre WTP facility. An approximately 36.5-mile pipeline conveys treated water from the WTP to turnouts for each participating city. Under normal precipitation conditions, approximately 42.9% of the overall water supply delivered to the participating cities by the SCSWSP will be allocated to the City of Manteca (see Table 4.10-1).

Table 4.10-1
SCSWSP Annual Deliveries to Participating Cities

City Receiving SCSWSP Deliveries	Maximum Annual Delivery (afy)[1]
Manteca	18,500
Escalon	2,799
Lathrop	11,791
Tracy	10,000
Total	**43,090**

[1] Normal precipitation year delivery at full project buildout
Source: SSJID 2000

SSJID's water supply source for the project is the Stanislaus River, based on pre-1914 rights for direct diversion and diversion to storage. Total water deliveries to the participating cities at full project buildout, and during normal precipitation years, would be approximately 43,090 afy. Maximum deliveries to each city under normal precipitation conditions are shown in Table 4.10-1. During drought conditions, deliveries would be reduced.

The EIR prepared for the SCSWSP describes the environmental impacts associated with the project and mitigation measures to address significant impacts. A copy of the EIR is available for review at the City of Manteca Community Development Department, 1001 West Center Street, Manteca, California 95337. According to the SCSWSP EIR, the project would result in the following significant environmental effects, summarized by issue area:

Land Use

- Farmland or adjacent agricultural activities could be affected due to siting and operation of project facilities.
- Sensitive land uses, primarily residences, may incur short-term disturbance due to construction of proposed project facilities.

Hydrology, Flooding, and Water Quality

- Use of Woodward Reservoir as a drinking water supply source would increase its sensitivity to water quality degradation issues within the watershed.
- Local storm runoff volumes may increase due to increased impervious surface area at the WTP.
- Increased sedimentation in the stream channel may result from possible creek bed erosion during the pipeline installation or proposed project construction.
- Potential damage to structures in the project area may result from inundation due to the remote chance of dam failure at Woodward Reservoir.
- Increased erosion and sedimentation, with subsequent impacts to water quality and/or storm drain capacity, may result from construction of the proposed facilities.
- Surface water quality may be affected due to discharge from dewatering activities during construction.

Air Quality

- Temporary increases in air pollutant emissions will occur during construction.
- Operational, equipment, and vehicular air emissions will result at the WTP.

Geology, Soils, and Seismicity

- Potential seismic activity and resulting hazards in the region could affect the project facilities and its users.
- Underlying soil properties may cause damage at the proposed facilities.

Biological Resources

- Jurisdictional wetlands and annual grasslands may be removed during construction of the project facilities.
- Temporary and permanent impacts on special-status plants and animals, supported by wetlands and annual grasslands, may result from construction of the project facilities.
- Sensitive tree resources would be removed during construction of the water transmission lines and Tracy pump station.
- Temporary impacts to riparian habitats, and associated special-status plants and animals, may result during construction of the water transmission lines.

Noise

- Noise levels will be temporarily increased during construction.
- Increased noise will be generated from operation of the WTP and Tracy pump station.

Hazardous Materials/Public Health

- Workers, the public, and the environment could be affected by hazardous materials stored and used at the WTP.
- Pre-existing hazardous materials could contaminate construction workers, the public, and the environment during construction of the proposed project components.

Visual Resources

- Visual quality in the project area could be adversely affected by project facilities.

Transportation and Traffic Circulation

- Public roads in the construction zone may experience short-term traffic delays during construction of the water transmission lines.
- Vehicle trips by workers will be increased during construction.
- Access to adjacent land uses, streets, and access for bicycles/pedestrians will be adversely affected by the proposed project.
- Transit service will be disrupted on pipeline alignment routes due to construction of the proposed project.
- Vehicular, bicycle, and pedestrian traffic safety hazards on public roadways will increase due to construction of the proposed project.
- Designated haul routes will incur increased wear-and-tear during construction of the proposed project.
- Newly repaved streets would be disrupted due to construction of the proposed project.
- Use of some existing agricultural dirt roads could be prohibited or limited due to construction and operation of the pipeline alignments.

Public Services and Utilities/Energy

- Utility services may be disrupted during pipeline construction.
- Utility conflicts may result from construction of specific segments of the water transmission lines.
- Access for local emergency services may be temporarily blocked during pipeline construction.
- Short-term police and fire protection services will be required for traffic management and accidents during construction activities.

Cultural Resources

- Within the project area, damage to known and/or unknown prehistoric archeological, historical, or paleontological resources may result during construction.

Recreation

- Use of Woodward Reservoir as a drinking water supply may place restrictions on current recreational activities to comply with public health regulations for drinking water and to protect water quality.

As indicated in the SCSWSP EIR, each of the above impacts would be reduced to less-than-significant levels with implementation of adopted mitigation measures. As noted above, maximum deliveries to the City of Manteca (18,500 afy) constitute approximately 42.9% of the total water deliveries associated with the SCSWSP in normal precipitation years, while the proposed project (78,600 gallons per day) constitutes approximately 0.475% of the total SCSWSP deliveries to Manteca (78,600 gallons per day = 28,689,000 gallons per year = 88.04 afy). Although implementation of the project would contribute to the need for and overall environmental impacts of the SCSWSP as assessed in the SCSWSP EIR, these impacts would be reduced to a less-than-significant level with implementation of recommended mitigation in the SCSWSP EIR. Therefore, this impact would be **less than significant**.

IMPACT 4.10-3 Increased Demand for Wastewater Treatment and Conveyance Facilities. *Although implementation of the proposed project would increase demand for wastewater treatment and conveyance facilities, existing wastewater treatment facilities would be adequate to serve the proposed project, and no expansion of these facilities would be required. This impact is considered* ***less than significant****.*

Wastewater generation rates are typically 80 to 90% of domestic water usage (Metcalf & Eddy 2002). Therefore, the proposed project would result in the generation of a total average daily flow of 70,740 gallons per day (gpd) (78,600 gpd multiplied by 0.90) with a peak daily flow of 212,220 gpd (70,740 gpd multiplied by 3). The City of Manteca WQCF has a current capacity of 9.87 mgd. The wastewater generated by the proposed project (described above as being approximately 0.07 mgd), in combination with the average wastewater flows currently being treated at the WQCF (approximately 6.5 mgd), would not exceed the plant's permitted capacity. The City has adopted an allocation schedule for sewer treatment and conveyance capacity (Resolution No. R2005-435). The City has indicated that they would be able to meet the project's wastewater treatment demands in combination with other existing and projected demands. No new or expanded wastewater treatment facilities would be required to serve the project.

Sewage disposal for the project site would be provided via connection to the City's sewer system. The project would connect to an extension of the 12-inch sewer main in Atherton Drive. On-site wastewater conveyance facilities consisting of 8-inch and 6-inch sewer lines would be constructed to connect the project to the city sewer main. As described in the City General Plan, the project applicant would be responsible for paying the required sewer connection and capacity fees (i.e., PFIP fees). The project's internal wastewater conveyance system would be designed and constructed in conformance with the City's standards for materials and installation, which is the California Plumbing Code. Project land uses would discharge into the on-site collection lines which extend and connect to the City's sewer system. Furthermore, the project would be consistent with City General Plan policies related to provision of adequate wastewater facilities through payment of required PFIP fees (Policy PF-P-24).

As required by the City, the project shall convey wastewater to the existing 12-inch sewer main on Atherton Drive, which conveys flows to the Antigua pump station connecting to a 12 inch force main on Woodward Avenue. Capacity is currently available in the 12-inch force main but is subject to a first-come, first serve basis. The project may or may not require upgrades to downstream infrastructure, depending on the available capacity in the existing 12-inch sanitary sewer force main in Woodward Avenue and pumping capacity at the Antigua pump station. Areas near the project site are agricultural, developed, or are currently developing with urban land uses. Impacts associated with construction of these improvements would generally consist of construction-related air (e.g., PM_{10} emissions), noise, biological habitat (e.g., foraging habitat, wetlands), and traffic impacts. In general, proposed improvements would be located within existing right-of-ways (e.g., Woodward Avenue, Union Road) or in areas that are urbanized or would be urbanized at the time these facilities would be constructed. Based on a reconnaissance-level survey of the project area, including areas along Woodward Avenue and Pagoda Avenue,

similar habitat conditions are present along these roadways as compared to the project site. Therefore, any downstream sewer conveyance improvements would result in similar environmental impacts as the project. Mitigation recommended for the proposed project would substantially reduce construction-related impacts associated with this force main.

Because adequate wastewater treatment capacity would be available to serve the project and on-site and potential off-site conveyance facilities would be designed according to City standards, this would be a **less-than-significant** impact.

IMPACT 4.10-4 Increased Generation of Solid Waste. *Although the proposed project would increase solid waste generation, Forward Landfill, which would receive solid waste from the project site, has sufficient available capacity to accommodate the project's solid waste demands through 2020. Therefore, this impact is considered less than significant.*

Approximately 950 workers are expected to be employed at the project site at buildout. The California Integrated Waste Management Board (CIWMB) provides an average per-capita solid waste disposal rate for business types (CIWMB 2008b). The proposed project provides for several types of commercial development, including a food market, clothing stores, general retail uses, and restaurants. Business waste disposal rates are calculated by CIWMB to range from 0.3 ton per year for general merchandise stores (retail) to 3.3 tons per year for building material and garden stores (retail trade) (CIWMB 2008b). The majority of employees at the project site are likely to be working in jobs within waste categories such as "other retail" (1.9 tons per employee per year), restaurants (3.1 tons per employee per year), and food stores (2.9 tons per employee per year). To estimate the waste disposal rate for the project, a ratio of square footages for the three main land uses on the project (other retail, restaurants, and food stores) was utilized. Based on project information provided by the applicant, the project would construct approximately 334,700 square feet of other retail, 55,300 square feet of restaurant space, and a 65,000 square foot food market. Using these square footages, other retail would account for approximately 74% of total employees. Of the total number of employees expected to be employed at the project site at buildout, it can be estimated that approximately 703 (950 multiplied by 0.74) employees would work in other retail stores. In addition, it can be estimated that approximately 133 (950 multiplied by 0.14) employees would work in the food market. The remaining employees are assumed to work in restaurants, which accounts for approximately 114 employees (950 multiplied by 0.12).

Using the other retail waste disposal rate of 1.9 tons per employee per year results in the generation of 1,336 tons of waste generated annually by employees working in the other retail stores (1.9 tons multiplied by 703 employees). Using the waste disposal rate for food stores and restaurants (2.9 and 3.1 tons per employee per year respectively) results in the generation of 386 tons of waste generated annually by employees working in the food market, and 353 tons of waste generated annually by employees working in the restaurants. Combining all land uses of the project, the project is estimated to generate approximately 2,075 tons of solid waste annually by employees on the proposed project site.

The Forward Landfill has approximately 23.70 million cubic yards of remaining capacity, an estimated closure date of 2020, and is permitted to accept a maximum of 8,668 tons per day of solid waste (CIWMB 2008a). The proposed project would generate a maximum of 5.68 tons of waste per day which accounts for approximately 0.07% of the total daily solid waste allowance at the Forward Landfill, and is not substantial in relation to the total solid waste volumes accepted each day. Therefore, this landfill has sufficient permitted capacity to accommodate the project's solid waste disposal needs. In addition, the proposed project would comply with all federal, state, and local statutes and regulations related to solid waste reduction and recycling, and the project would be consistent with City General Plan policies related to source reduction and recycling (Policy PF-P-31). Therefore, this impact is considered **less than significant**.

IMPACT 4.10-5 **Increased Demand for Electricity and Natural Gas and Required Extension of Electrical and Natural Gas Infrastructure.** *Implementation of the project would increase demand for natural gas and electricity in the City. However, the energy demands created by the project are not substantial in relation to the total energy supplied by PG&E in its northern and central California service area (estimated in 2007 to be 86,179 million kilowatt-hours) or energy demands expected in the future. Proposed on-site natural gas and electrical infrastructure improvements would be required to comply with existing City, PG&E, and applicable International Building Code requirements, and would be sufficient to serve the project. Therefore, this impact is considered* ***less than significant****.*

Buildout of the proposed project would increase electricity and natural gas demands within the City. The energy demands created by the project are not substantial in relation to the total energy supplied by PG&E to its northern and central California service area (estimated in 2007 to be 86,179 million kilowatt-hours) or energy demands expected in the future. The on-site service lines would be sized to meet the demands of the project, and public utility easements would be dedicated for all underground facilities. Extension of lines and construction of facilities to serve the project site would occur concurrently with development, and the location of this infrastructure would be identified in the final project design. All new on-site infrastructure would be installed underground, in conformance with City General Plan standards (Policy PF-I-17). Because the proposed electrical and natural gas improvements would be required to comply with existing City, PG&E, and applicable International Building Code requirements, proposed improvements would be sufficient to serve the project. Therefore, this would be a **less-than-significant** impact.

IMPACT 4.10-6 **Increased Demand for Fire Protection Facilities and Services.** *Development of the proposed project would result in increased demand for fire protection services. The proposed project would be required to pay development fees to cover the costs of equipment and services, and would meet the minimum necessary fire protection and safety requirements identified in applicable codes and regulations. The City fire department currently has adequate staff and facilities to serve proposed project. This impact is considered* ***less than significant****.*

The proposed project would result in the development of a commercial shopping center including retail and restaurant space. The project area is located within a 5-minute response time from Fire Station 242, which is staffed by at least three personnel. MFD staff indicated that personnel are available to serve the proposed land uses on the project site (Sutton, pers. comm., 2008). The passage of Measure M in November 2006 increased the sales tax rate in the city to provide funding for necessary public services including funding for additional fire personnel, and has allowed the fire department to receive sufficient revenue for an additional fire station and ladder truck. Existing and future fire protection staff and facilities would have the capability to adequately serve the proposed development, and no additional fire protection facilities (i.e., fire stations) would be needed to serve the project. Because adequate facilities and staff would be available to serve the project, this impact would be **less than significant**.

IMPACT 4.10-7 **Increased Demand for Fire Flow.** *The proposed project would include fire suppression facilities that would provide adequate fire flow capacity consistent with City standards. Therefore, this impact is considered* ***less than significant****.*

MFD maintains oversight authority to ensure that adequate water volume and pressure are available in the department's service area. Methods to calculate minimum fire flow involve design-specific calculations, including the density of structures, height, numbers of stories, square footage, building materials, and structural design. Minimum requirements for available fire flow at a given building are dependent on standards set forth in the California Fire Code. Generally, fire flow requirements for the commercial development associated with the proposed project is 2,500 gallons-per-minute with a minimum 2-hour duration. The proposed project would incorporate fire flow requirements into project designs, and the City would not authorize the occupancy of any

structures until the project applicant has confirmed the provision of fire flows as required by the MFD and the California Fire Code. Therefore, this impact would be **less than significant**.

IMPACT 4.10-8 Increased Demand for Police Protection Facilities and Services. *Development of the proposed project would increase demand for police protection facilities and services. However, the project would contribute sales tax revenue and the project would pay development fees to provide police protection services which would help ensure funding for any additional necessary officers or equipment. This impact is considered less than significant.*

Police services would be provided to the proposed project site by the Manteca Police Department, which is composed of more than 70 sworn staff, 30 civilian support staff, and more than 200 volunteers. The police department is located approximately 1¼ miles north of the project site.

The proposed project does not include new housing and would not generate additional residents in the City. However, the City would provide police services to new commercial uses on the project site. The passage of Measure M in 2006 increased the sales tax rate in the City to provide funding for necessary public services including funding for additional police personnel. With the increased funding from Measure M and increased sales tax revenue from proposed commercial land uses, sufficient funding would be available to provide any additional and necessary police officers and equipment. As stated in the City General Plan, minimum feasible police response times for police calls would be maintained through staffing and patrol arrangements. Project-related sales tax revenue from proposed commercial uses would provide the project's fair-share funding for any necessary officers or equipment. Consistent with City General Plan Policy PF-P-39, existing and future police protection services would have the capability to adequately serve the proposed development. Therefore, levels of service provided by the Manteca Police Department would be adequate to serve the proposed project. This impact is considered **less than significant**.

IMPACT 4.10-9 Impacts on Existing Utility Corridors. *Development of the proposed project could potentially disrupt existing PG&E aboveground and underground utility facilities in the project area, resulting in interruption of service. This would be a potentially significant impact.*

Implementation of the proposed project could potentially disrupt existing PG&E aboveground and underground utility facilities in the project area. During the project's design phase, the City would consult with the local utility companies that operate utility facilities in the project area to avoid potential disturbances, where possible. Existing utilities are installed within several roadways throughout the project area. Project-related construction activities could potentially disrupt existing utility facilities in the project area. In accordance with City policies, the City would consult during the design phase with utility companies that operate underground or aboveground utilities in the project area to determine the exact location of these facilities. Typically, the City would avoid existing utilities where possible. If these utilities cannot be avoided, the City would coordinate with the utility companies to determine the best method for minimizing potential disturbances. Because implementation of the proposed project could potentially disrupt existing PG&E aboveground and underground utility facilities in the project area, this impact would be **potentially significant**.

4.10.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.10-1: Increased Demand for Water Supply, Treatment, Storage, and Distribution.

Impact 4.10-2: Environmental Impacts Associated with the SSJID SCSWSP.

Impact 4.10-3: Increased Demand for Wastewater Treatment and Conveyance Facilities.

Impact 4.10-4: Increased Generation of Solid Waste.

Impact 4.10-5: Increased Demand for Electricity and Natural Gas and Required Extension of Electrical and Natural Gas Infrastructure.

Impact 4.10-6: Increased Demand for Fire Protection Facilities and Services.

Impact 4.10-7: Increased Demand for Fire Flow.

Impact 4.10-8: Increased Demand for Police Protection Facilities and Services.

The following mitigation is recommended for the potentially significant impact:

Mitigation Measure 4.10-9: Impacts on Existing Utility Corridors.

PG&E owns and operates natural gas and electric facilities that are located within and adjacent to the proposed project area. To promote the safe and reliable maintenance and operation of utility facilities, the California Public Utilities Commission (CPUC) has mandated specific clearance requirements between utility facilities and surrounding objects or construction activities. To ensure compliance with these standards, the applicant will coordinate with PG&E early in the development of project plans. Any proposed development plans will provide for unrestricted utility access and prevent easement encroachments that might impair the safe and reliable maintenance and operation of PG&E's facilities.

The project applicant shall be responsible for the costs associated with any relocation of existing PG&E facilities to accommodate the development of the proposed project. Because facilities relocations require long lead times and are not always feasible, the applicant is encouraged to consult with PG&E as early in the planning stages as possible. Relocations of PG&E's electric transmission and substation facilities (50,000 volts and above) could also require formal approval from the CPUC. If required, this approval process could take up to 2 years to complete.

4.10.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the above mitigation, the project's impacts on existing utility corridors would be reduced to a less-than-significant level because the City of Manteca would coordinate with PG&E early in the development of project plans.

4.11 TRANSPORTATION AND CIRCULATION

This chapter presents the results of the transportation impact analysis prepared by Fehr & Peers for the proposed Union Crossing Development Project. The purpose of this analysis is to identify potential transportation impacts caused by the proposed project and to determine required measures to mitigate project-generated significant impacts. Exhibit 4.11-1 shows the location of the project and study intersections, and Exhibit 4.11-2 shows the tentative project site plan.

Existing and future conditions were evaluated with level of service (LOS) calculations for the key intersections, roadway segments, freeway mainline segments, and freeway ramp junctions near the project site. Project impacts were determined according to guidelines established by the City of Manteca, San Joaquin Council of Governments (SJCOG), and the California Department of Transportation (Caltrans).

The operations of study intersections and freeway facilities were evaluated during weekday morning (a.m.) and evening (p.m.) peak hours. The operations of the roadway segments were evaluated using Average Daily traffic (ADT) volumes. Each intersection, roadway segment, freeway, on-ramp, and off-ramp was evaluated under the following four scenarios.

- **Scenario 1, Existing Conditions:** Existing volumes obtained from traffic counts.
- **Scenario 2, Existing Plus Project Conditions:** Existing volumes plus traffic generated by the proposed Union Crossing Project.
- **Scenario 3, Cumulative No Project Conditions:** Volumes obtained from a modified version of the SJCOG regional travel demand forecasting (TDF) model under cumulative (year 2025) conditions.
- **Scenario 4, Cumulative Plus Project Conditions:** Union Crossing Project generated traffic added to Scenario 3 traffic volumes.

4.11.1 ENVIRONMENTAL SETTING

This section describes the existing conditions of the local roadway facilities, regional freeway system, pedestrian and bicycle facilities, transit service, and traffic operations.

ROADWAY SYSTEM

Exhibit 4.11-1 shows the project site and the surrounding local and regional roadway network. Exhibit 4.11-2 shows the project site plan. SR 120, I-5, and SR 99 provide regional access. The Union Road interchange with SR 120 provides the primary access to the regional freeway network; however, access is also available via the Airport Way and Main Street interchanges with SR 120. SR 99 is accessed mainly via its interchange with SR 120. Woodward Avenue, Union Road, Main Street, Airport Way, and other local roads provide local access. A description of these roadways is provided below.

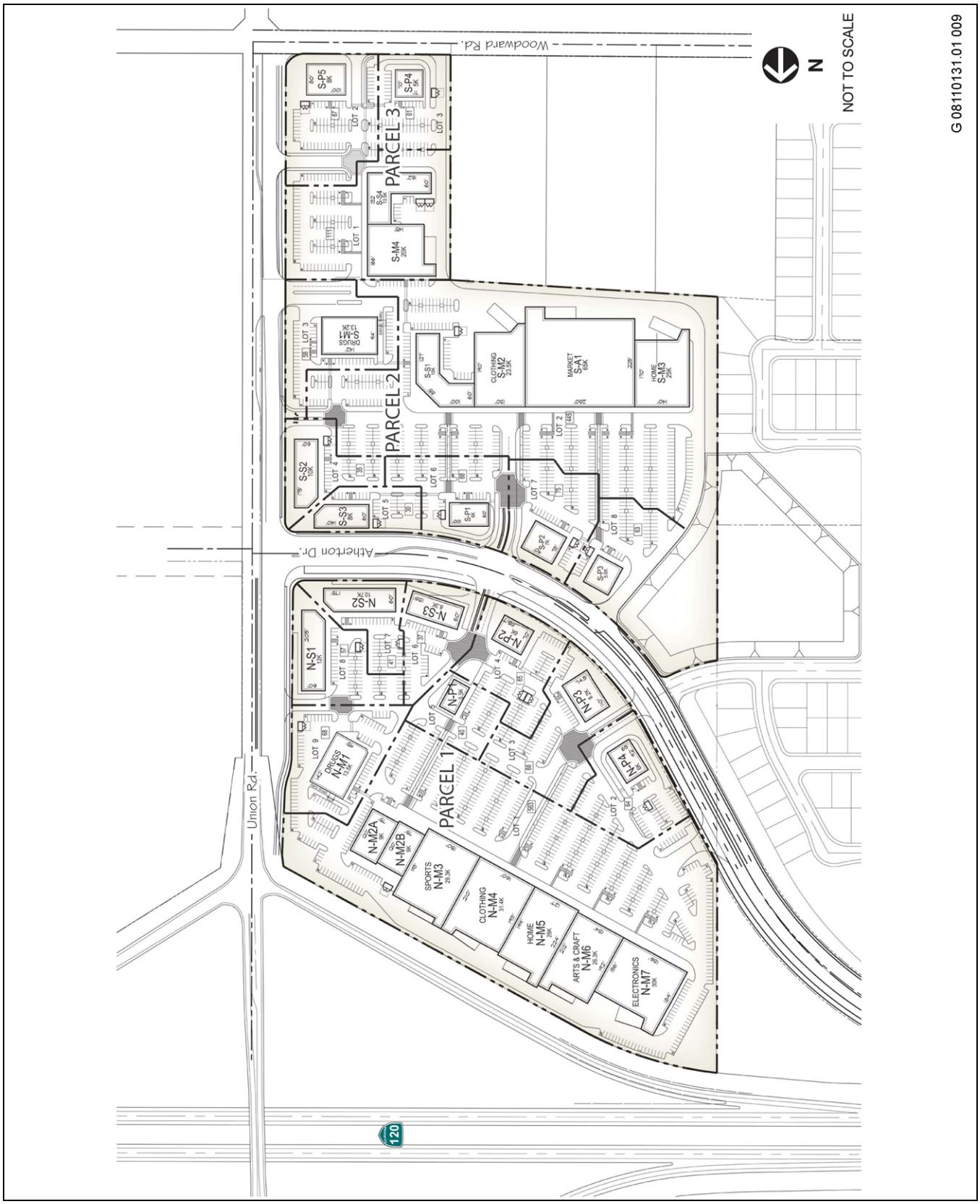
SR 120 is an east-west, four-lane freeway that primarily serves as a freeway connection between I-5 and SR 99. SR 120 has an existing average daily traffic (ADT) volume of 60,000 vehicles in the vicinity of the Union Road interchange.

SR 99 is major north-south freeway located approximately two miles east of the project site. SR 99 provides a connection between all of the major cities in the Central Valley, from Sacramento and Stockton in the north to the cities of Modesto, Merced, Fresno, and Bakersfield in the south. SR 99 has three lanes in each direction south of SR 120 and two lanes in each direction north of SR 120.



Source: Fehr & Peers 2008

Traffic Project Location **Exhibit 4.11-1**



Source: Fehr & Peers 2008

Traffic Site Plan **Exhibit 4.11-2**

Union Road is a north-south local street located immediately east of the project site. Union Road provides access to SR 120 and Downtown Manteca to the north. Adjacent to the project site, Union Road is a two lane road with a speed limit of 55 miles-per-hour. The west side of Union Road is rural in character while the east side of Union Road is built to urban standards, with curb, gutter, and sidewalk.

Atherton Drive is a discontinuous east-west, two-lane roadway south of SR 120 that is planned to connect McKinley Avenue in the west to Woodward Avenue near its intersection with Moffat Boulevard in the east. The segment of Atherton Drive between Airport Way and Sparrowhawk Street is already constructed; however, the portion between Sparrowhawk Street and Union Road is not constructed..

Woodward Avenue is an east-west, two-lane roadway that bounds the southern portion of the site. It extends from Oakwood Lake in the west to Moffat Boulevard in the east. Between Airport Way and Union Road, it is a rural roadway. East of Union Road, Woodward Avenue is built to urban standards on the north side of the street with curb, gutter, and sidewalk while the south side is rural in character. East of Main Street, Woodward Avenue becomes a four-lane roadway that is built to urban standards with curb, gutter, and sidewalk.

LEVEL OF SERVICE

The operations of roadway facilities are described in terms of Level of Service (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined, from LOS A, which represents completely uncongested operating conditions, to LOS F, which represents oversaturated operating conditions. LOS E represents at-capacity operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

Signalized Intersections

The LOS methodology approved by the City analyzes traffic operations at signalized intersections based on average vehicular control delay, as calculated using the methods described in Chapter 16 of the *Highway Capacity Manual* (HCM) (transportation Research Board 2000). Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using the Synchro or Simtraffic software program and is correlated to a LOS designation, as shown in Table 4.11-1.

Unsignalized Intersections

Operations of the unsignalized study intersections were evaluated using the methodology contained in Chapter 17 of the HCM. LOS ratings for stop sign-controlled intersections are based on the average control delay expressed in seconds per vehicle. At two-way or side-street stop-controlled intersections, the control delay is calculated for each movement, not for the intersection as a whole, and the LOS is based on movement with the highest delay. For all-way stop-controlled locations, a weighted average delay for the entire intersection is calculated. Table 4.11-2 summarizes the relationship between delay and LOS for unsignalized intersections.

Peak-Hour Signal Warrants

A peak-hour signal warrant analysis was conducted for all unsignalized study intersections. The analysis applied the peak-hour traffic signal warrant recommended in the *California Manual on Uniform traffic Control Devices* (California MUTCD (Caltrans 2006). It should be noted that the peak-hour signal warrant is only one of several warrants that are evaluated to determine the need for a traffic signal.

Even when peak-hour signal warrant is satisfied, the decision to install a signal should not be based solely upon this factor. The City of Manteca, San Joaquin County, or Caltrans regularly monitor traffic conditions and accident data, and evaluate the full set of warrants in order to prioritize and program intersections for signalization.

Table 4.11-1
Signalized Intersection Level of Service Criteria

Level of Service	Type of Flow	Delay	Maneuverability
A	Free flow	Very slight or no delay. If signalized, conditions are such that no approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.	Turning movements are easily made, and nearly all drivers find freedom of operation.
B	Stable flow	Slight delay. If signalized, an occasional approach phase is fully utilized.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted in groups of vehicles.
C	Stable flow	Acceptable delay. If signalized, a few drivers arriving at the end of a phase must wait through one signal cycle.	Backups may develop behind turning vehicles. Most drivers feel somewhat restricted.
D	Approaching unstable flow	Tolerable delay. Delays may be substantial during short periods, but excessive backups do not occur.	Maneuverability is severely limited during short periods because of temporary backups.
E	Unstable flow	Intolerable delay. Delay may be great, up to several signal cycles.	There are typically long queues of vehicles waiting upstream of the intersection.
F	Forced flow	Excessive delay.	Jammed conditions. Backups from other locations restrict or prevent movement. Volumes may vary widely, depending primarily on downstream conditions.

Source: Transportation Research Board 2000

Table 4.11-2
Stop-Controlled Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay Per Vehicle (in Seconds)
A	Little or no delay	≤ 10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: transportation Research Board 2000

Roadway Segments

Roadway segment operations were evaluated using the average daily traffic (ADT) volume thresholds, as shown in Table 4.11-3. These volume thresholds were developed in conjunction with the City of Manteca for use in the City of Manteca PFIP. Maximum ADT thresholds are not identified for LOS A and LOS B because the threshold for LOS C includes all facilities that would otherwise be LOS A or LOS B.

Table 4.11-3 Daily Traffic Volume Levels of Service			
Lanes	Maximum ADT for Level of Service C	Maximum ADT for Level of Service D	Maximum ADT for Level of Service E
2	12,000	14,600	15,600
4	24,400	31,100	32,900
6	36,400	46,800	49,300
Source: Compiled by Fehr & Peers in 2008 in conjunction with the City of Manteca			

Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

Freeway-segment operations were evaluated using the methodology contained in Chapter 21 of the HCM. The average density, in passenger cars per mile per lane, was calculated using the Highway Capacity Software (HCS+) analysis software and is correlated to an LOS designation for both mainline segments and ramp junctions, as shown in Table 4.11-4.

Table 4.11-4 Density-Based Freeway Levels of Service		
Level of Service	Mainline Density[1]	Ramp Junction Density[1]
A	≤ 11.0	≤ 10.0
B	11.1 to 18.0	10.1 to 20.0
C	18.1 to 26.0	20.1 to 28.0
D	26.1 to 35.0	28.1 to 35.0
E	35.1 to 45.0	> 35.0
F	> 45.0	Demand exceeds capacity
Notes: [1] Measured in vehicles per mile per lane. Source: transportation Research Board 2000		

ANALYSIS LOCATIONS

The transportation analysis evaluated the operations of the following key intersections, roadway segments, and freeway facilities.

Intersections

1. Airport Way and Yosemite Avenue
2. Airport Way and Wawona Street
3. Airport Way and Daniels Street
4. Airport Way and the SR 120 westbound ramps
5. Airport Way and the SR 120 eastbound ramps
6. Airport Way and Atherton Drive
7. Airport Way and East Woodward Avenue
8. Union Road and West Yosemite Avenue
9. Union Road and Wawona Street

10. Union Road and Daniels Street
11. Union Road and the SR 120 westbound ramps
12. Union Road and the SR 120 eastbound ramps
13. Union Road and Atherton Drive
14. Union Road and East Woodward Avenue
15. Main Street and the SR 120 westbound ramps
16. Main Street and the SR 120 eastbound ramps
17. Main Street and Atherton Drive (cumulative conditions only)
18. Main Street and East Woodward Avenue
19. Union Road and Union Crossing Driveway #1
20. Union Road and Union Crossing Driveway #2
21. Union Road and Union Crossing Driveway #3
22. Union Road and Union Crossing Driveway #4
23. Atherton Drive and Union Crossing Driveway #5
24. Atherton Drive and Union Crossing Driveway #6
25. Atherton Drive and Union Crossing Driveway #7
26. Atherton Drive and Union Crossing Driveway #8
27. Woodward Avenue and Union Crossing Driveway #9
28. Woodward Avenue and Union Crossing Driveway #10

Roadway Segments

1. Atherton Drive between Airport Way and Union Road
2. Atherton Drive between Union Road and Main Street (cumulative conditions only)
3. Airport Way between Yosemite Avenue and Daniels Street
4. Airport Way between Daniels Street and SR 120
5. Airport Way between State Route (SR) 120 and Atherton Drive
6. Airport Way between Atherton Drive and Woodard Avenue
7. Airport Way between Woodward Avenue and Peach/McKinley Avenue
8. Union Road between Yosemite Avenue and Wawona Street
9. Union Road between Daniels Street and SR 120
10. Union Road between SR 120 and Atherton Drive
11. Union Road between Atherton Drive and Woodard Avenue
12. Union Road between Woodward Avenue and Peach Avenue
13. Main Street between Mission Ridge Drive and SR 120
14. Main Street between SR 120 and Atherton Drive
15. Main Street between Atherton Drive and Woodard Avenue
16. Main Street between Woodward Avenue and Sedan Avenue
17. Woodward Avenue between McKinley Avenue and Airport Way
18. Woodward Avenue between Airport Way and Oleander Road
19. Woodward Avenue between Oleander Road and Union Road
20. Woodward Avenue between Union Road and Tinnin Road
21. Woodward Avenue between Tinnin Road and Main Street
22. Woodward Avenue between Main Street and Van Ryn Avenue

Freeway Mainline Segments

1. Eastbound and westbound SR 120 between I-5 and Yosemite Avenue
2. Eastbound and westbound SR 120 between Yosemite Avenue and Airport way
3. Eastbound and westbound SR 120 between Airport Way and Union Road
4. Eastbound and westbound SR 120 between Union Road and Main Street
5. Eastbound and westbound SR 120 between Main Street and SR 99

6. Northbound and southbound SR 99 between SR 120 and Yosemite Avenue
7. Northbound and southbound SR 99 between Yosemite Avenue and Lathrop Road
8. Northbound and southbound SR 99 between 120 and Austin Road
9. Northbound and southbound SR 99 between Austin Road and Jack Tone Road

Freeway Ramp Junctions

1. Eastbound SR 120 off-ramp to Airport Way
2. Eastbound SR 120 on-ramp from Airport Way
3. Westbound SR 120 off-ramp to Airport Way
4. Westbound SR 120 on-ramp from Airport Way
5. Eastbound SR 120 off-ramp to Union Road
6. Eastbound SR 120 on-ramp from Union Road
7. Westbound SR 120 off-ramp to Union Road
8. Westbound SR 120 on-ramp from Union Road

EXISTING NO PROJECT CONDITIONS

The operations of the local study intersections and regional freeway system were evaluated during weekday morning (a.m.) and evening (p.m.) peak-hour conditions. To assess these conditions, traffic counts were collected at all study intersections during the weekday a.m. (6:30–8:30) and p.m. (4:00–6:00) peak periods in January 2008. Weather conditions were dry and cloudy, and no unusual traffic conditions were observed during the count days.

Exhibits 4.11-3a and 4.11-3b show the existing a.m. and p.m. peak hour turning-movement volumes at the study intersections, as well as existing intersection lane configurations and traffic control devices.

Intersections

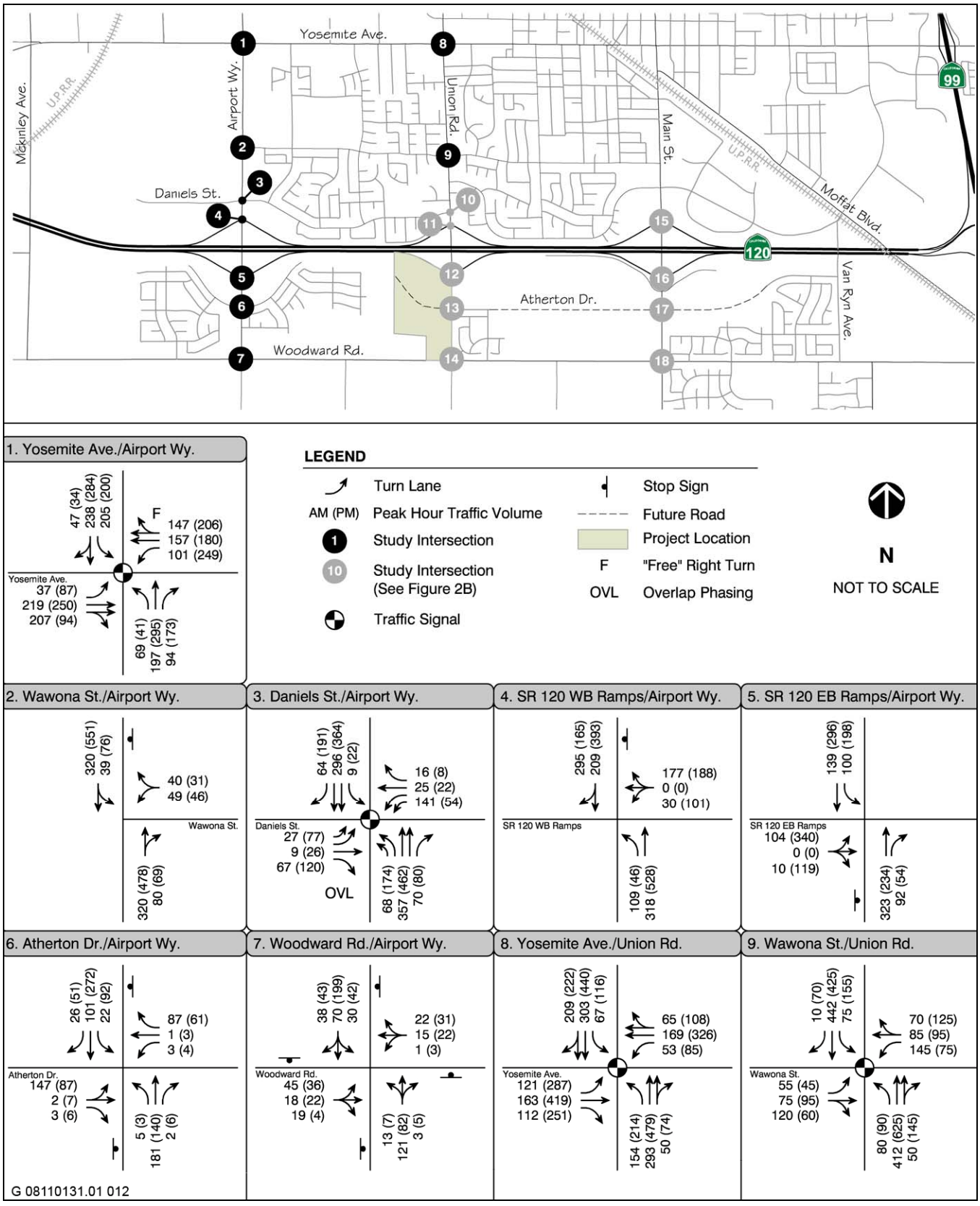
Existing intersection lane configurations, traffic control devices, and peak hour turning-movement volumes were used to calculate the LOS for the 17 existing study intersections during the a.m. and p.m. peak hours. Table 4.11-5 shows the results of the LOS analysis for existing conditions. The technical appendices (Appendix H1) contain the corresponding calculation sheets. The results of the LOS calculations indicate that six of the study intersections currently operate at an unacceptable LOS during either the a.m. and/or p.m. peak hours.

- Airport Way and Wawona Street (p.m. peak hour)
- SR 120 westbound ramps and Airport Way (p.m. peak hour)
- SR 120 eastbound ramps and Airport Way (p.m. peak hour)
- Union Road and Daniels Street (a.m. and p.m. peak hour)
- SR 120 westbound ramps and Union Road (p.m. peak hour)
- SR 120 eastbound ramps and Union Road (a.m. and p.m. peak hour)

Field observations corroborate the LOS results above. In the p.m. peak hour particularly, queues were observed at the off-ramp approaches to each of the ramp terminal intersections listed above.

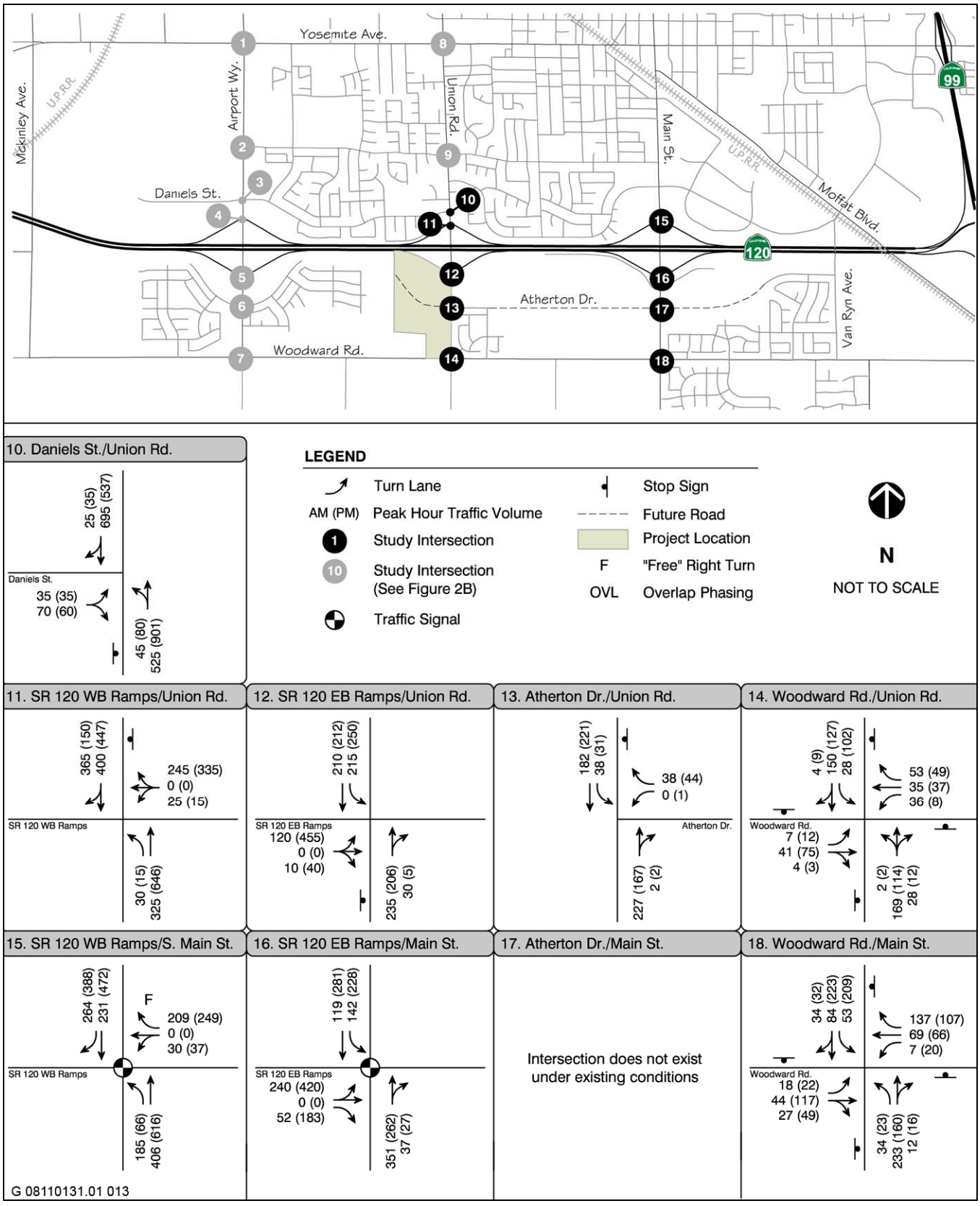
Signal Warrants

A peak-hour signal warrant analysis was conducted for each of the unsignalized study intersections. The analysis applied the peak-hour traffic signal warrant recommended in the California MUTCD. Table 4.11-5 summarizes the signal warrant analysis. The technical appendices contain the corresponding calculation sheets (Appendix H1). The analysis indicates that under Existing Conditions, all of the unsignalized study SR 120 ramp terminal intersections would meet peak hour signal warrant criteria during either the a.m. or p.m. peak hour.



Source: Fehr & Peers 2008

Peak Hour Traffic Volumes and Lane Configurations – Existing Conditions **Exhibit 4.11-3a**



Source: Fehr & Peers 2008

Peak Hour Traffic Volumes and Lane Configurations – Existing Conditions **Exhibit 4.11-3b**

Table 4.11-5
Existing No Project Intersection Levels of Service and Signal Warrants

Intersection	Peak Hour[1]	Intersection Control	Delay[2]	LOS[3]	Meets Warrant[5]
1. Airport Way/Yosemite Ave.	a.m. p.m.	Signal	29 36	C D	N/A
2. Airport Way/Wawona St.	a.m. p.m.	Side Street Stop	3 (18) **4 (48)**	C **E**	No No
3. Airport Way/Daniels St.	a.m. p.m.	Signal	18 19	B B	N/A
4. Airport Way/SR 120 WB	a.m. p.m.	Side Street Stop	7 (27) **>100 (>100)**	D **F**	No **Yes**
5. Airport Way/SR 120 EB	a.m. p.m.	Side Street Stop	5 (24) **>100 (>100)**	C **F**	No **Yes**
6. Airport Way/Atherton Dr.	a.m. p.m.	Side Street Stop	7 (19) 5 (24)	C C	No No
7. Airport Way/Woodward Ave.	a.m. p.m.	All-Way Stop	9 9	A A	No No
8. Union Rd./Yosemite Ave.	a.m. p.m.	Signal	25 40	C D	N/A
9. Union Rd./Wawona St.	a.m. p.m.	Signal	26 27	C C	N/A
10. Union Rd./Daniels St.	a.m. p.m.	Side Street Stop	**3 (36)** **5 (64)**	**E** **F**	No No
11. Union Rd./SR 120 WB	a.m. p.m.	Side Street Stop	3 (24) **10 (48**)	C **E**	**Yes** **Yes**
12. Union Rd./SR 120 EB	a.m. p.m.	Side Street Stop	**9 (43)** **>100 (>100)**	**E** **F**	No **Yes**
13. Union Road/Atherton Dr.	a.m. p.m.	Side Street Stop	1 (10) 1 (11)	B B	No No
14. Union Road/Woodward Ave.	a.m. p.m.	All-Way Stop[4]	9 9	A A	No No
15. Main St./SR 120 WB	a.m. p.m.	Signal	8 8	A A	N/A
16. Main St./SR 120 EB	a.m. p.m.	Signal	21 24	C C	N/A
17. Main St./Atherton Drive	Does not exist under existing conditions				
18. Main Street/Woodward Ave.	a.m. p.m.	All-Way Stop[4]	10 12	B B	No No

Notes:
1 a.m. = morning peak hour, p.m. = evening peak hour.
2 Whole intersection weighted average control delay expressed in seconds per vehicle using methodology described in the 2000 Highway Capacity Manual. For side street stop controlled intersections, delay for the worst movement is shown presented in parentheses.
3 LOS = Level of service. For side street stop controlled intersections, LOS for the worst movement is shown (whole intersection weighted average control delay) in parentheses. LOS calculations conducted using the Synchro software package.
4 Because of multi-lane approaches at these intersections, the traffix software program was used to analyze all-way stop intersections.
5 "Yes" means that a peak hour signal warrant is met in either the a.m. or p.m. peak hour; N/A indicates that the intersection is already signalized.
Bold highlighting denotes intersections with unacceptable operations (LOS E or F) or that meet peak-hour volume warrants.
Source: Compiled by Fehr & Peers in 2008

Roadway Segments

Table 4.11-6 and Exhibit 4.11-4 show the results of the LOS analysis for existing roadway conditions. The LOS calculations indicate that all roadway segments currently operate at an acceptable LOS.

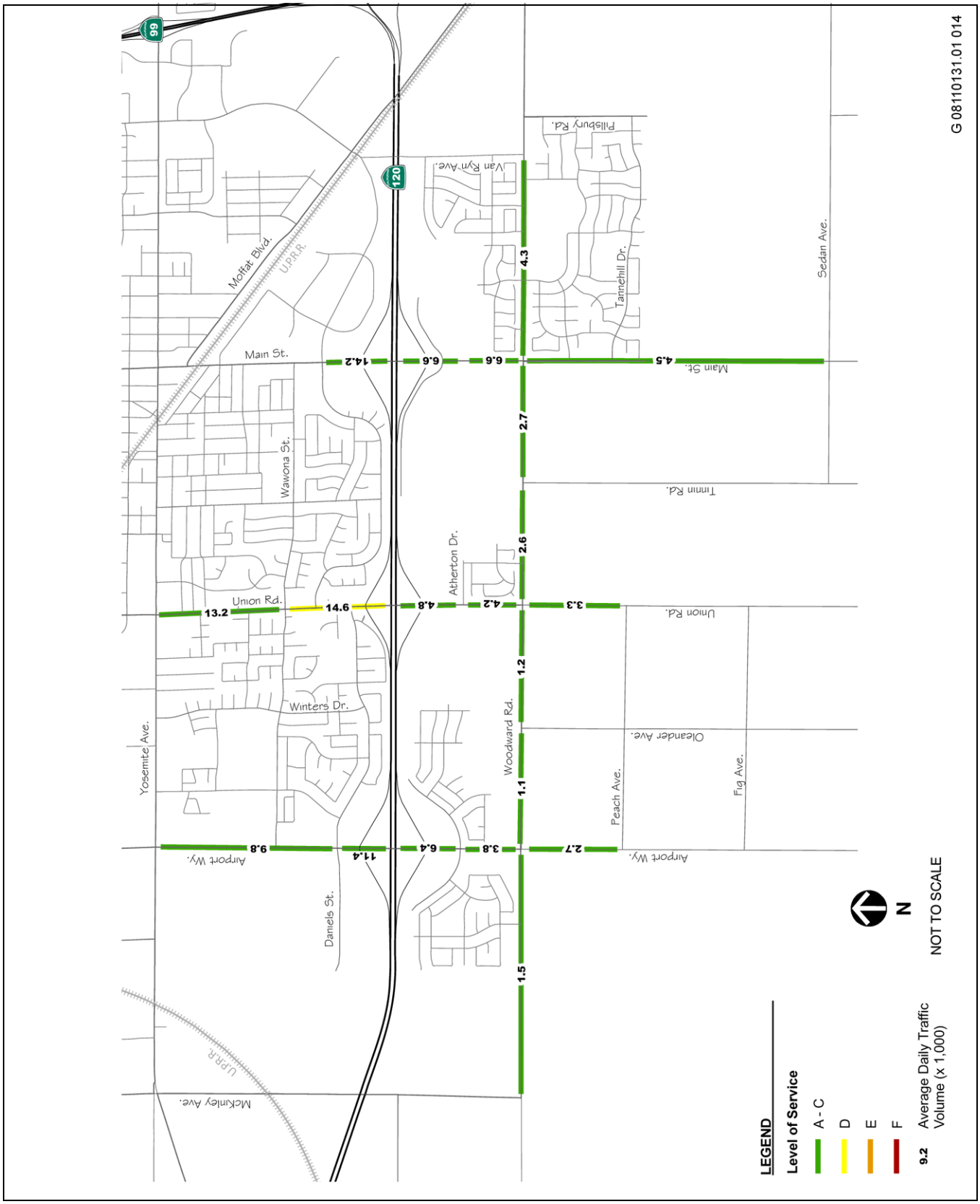
Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

Table 4.11-7 shows the results of the LOS analysis for existing freeway mainline conditions. The technical appendices contain the corresponding calculation sheets (Appendix H1). The LOS calculations indicate that all mainline segments of SR 120 currently operate at acceptable LOS D or better during both the a.m. and p.m. peak hours.

Table 4.11-6
Existing No Project Roadway Volumes & Levels of Service

	Roadway Segment	Lanes	Existing No Project	
			Volume[1]	LOS[2]
1.	Atherton Drive, between Airport Way and Union Road	Cumulative Conditions Only		
2.	Atherton Drive, between Union Road and Main Street	Cumulative Conditions Only		
3.	Airport Way, between Yosemite Avenue and Daniels Street	2	9,800	C
4.	Airport Way, between Daniels Street and SR 120	2	11,400	C
5.	Airport Way, between SR 120 and Atherton Drive	2	6,400	C
6.	Airport Way, between Atherton Drive and Woodward Avenue	2	3,800	C
7.	Airport Way, between Woodward Avenue and McKinley Avenue	2	2,700	C
8.	Union Road, between Yosemite Avenue and Wawona Street	4	13,200	C
9.	Union Road, between Daniels Street and SR 120	2	14,600	D
10.	Union Road, between SR 120 and Atherton Drive	2	4,800	C
11.	Union Road, between Atherton Drive and Woodward Avenue	2	4,200	C
12.	Union Road, between Woodward Avenue and Peach Avenue	2	3,300	C
13.	Main Street, between Mission Ridge Drive and SR 120	4	14,200	C
14.	Main Street, between SR 120 and Atherton Drive	2	6,600	C
15.	Main Street, between Atherton Drive and Woodward Avenue	2	6,600	C
16.	Main Street, between Woodward Avenue and Sedan Avenue	2	4,500	C
17.	Woodward Avenue, between McKinley Avenue and Airport Way	2	1,500	C
18.	Woodward Avenue, between Airport Way and Oleander Road	2	1,100	C
19.	Woodward Avenue, between Oleander Road and Union Road	2	1,200	C
20.	Woodward Avenue, between Union Road and Tinnin Road	2	2,600	C
21.	Woodward Avenue, between Tinnin Road and Main Street	2	2,700	C
22.	Woodward Avenue, between Main Street and Van Ryn Avenue	4	4,300	C

Notes:
[1] Average daily traffic
[2] LOS = Level of service
Source: Compiled by Fehr & Peers in 2008



Source: Fehr & Peers 2008

Average Daily Traffic Volumes and Roadway LOS – Existing Conditions **Exhibit 4.11-4**

Table 4.11-7
Existing No Project SR 120 and SR 99 Mainline Levels of Service

Travel Direction	Segment	Peak Hour[1]	Density (Vehicles per Miles per Lane)[2]	Level of Service
SR 120 eastbound	I-5 to Yosemite Avenue	a.m.	16.5	B
		p.m.	28.7	D
	Yosemite Avenue to Airport Way	a.m.	16.7	B
		p.m.	28.4	D
	Airport Way to Union Road	a.m.	17.4	B
		p.m.	26.3	D
	Union Road to Main Street	a.m.	18.4	C
		p.m.	24.0	C
	Main Street to SR 99	a.m.	17.4	B
		p.m.	20.9	C
SR 120 westbound	SR 99 to Main Street	a.m.	21.4	C
		p.m.	20.0	C
	Main Street to Union Road	a.m.	23.3	C
		p.m.	21.5	C
	Union Road to Airport Way	a.m.	24.4	C
		p.m.	19.8	C
	Airport Way to Yosemite Avenue	a.m.	26.3	D
		p.m.	19.2	C
	Yosemite Avenue to I-5	a.m.	26.1	D
		p.m.	19.2	C
SR 99 northbound	Jack Tone Road to Austin Road	a.m.	28.3	D
		p.m.	28.5	D
	Austin Road to SR 120	a.m.	Leisch	C
		p.m.	Leisch	C
	SR 120 to Yosemite Avenue	a.m.	Leisch	C
		p.m.	Leisch	C
	Yosemite Avenue to Lathrop Road	a.m.	24.7	C
		p.m.	25.7	C
SR 99 southbound	Lathrop Road to Yosemite Avenue	a.m.	24.7	C
		p.m.	25.5	C
	Yosemite Avenue to SR 120	a.m.	Leisch	D
		p.m.	Leisch	D
	SR 120 to Austin Road	a.m.	25.2	C
		p.m.	27.2	D
	Austin Road to Jack Tone Road	a.m.	26.1	D
		p.m.	29.2	D

Notes:
[1] a.m. = morning peak hour, p.m. = evening peak hour.
[2] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Weaving sections analyzed using the Leisch Method do not have a resulting density.
Source: Compiled by Fehr & Peers in 2008

Table 4.11-8 shows the results of the LOS analysis for existing ramp-junction conditions. The technical appendices contain the corresponding calculation sheets (Appendix H1). The LOS calculations indicate that all ramp junctions currently operate at acceptable LOS D or better during both a.m. and p.m. peak hours.

Table 4.11-8
Existing No Project SR 120 Ramp Junction Levels of Service

Travel Direction	Ramp	Merge/Diverge	Peak Hour	Density (Vehicles per Mile per Lane)	Level of Service
SR 120 eastbound	Airport Way	Diverge (Off-ramp)	a.m.	21.6	C
			p.m.	34.8	D
		Merge (On-ramp)	a.m.	19.8	B
			p.m.	28.6	D
	Union Road	Diverge (Off-ramp)	a.m.	22.4	C
			p.m.	32.1	D
		Merge (On-ramp)	a.m.	20.8	C
			p.m.	26.5	C
SR 120 westbound	Union Road	Diverge (Off-ramp)	a.m.	27.0	C
			p.m.	26.9	C
		Merge (On-ramp)	a.m.	26.8	C
			p.m.	21.6	C
	Airport Way	Diverge (Off-ramp)	a.m.	30.2	D
			p.m.	25.1	C
		Merge (On-ramp)	a.m.	28.5	D
			p.m.	22.3	C

Notes:
[1] a.m. = morning peak hour, p.m. = evening peak hour.
[2] Density is based on HCS+ analysis and results are in passenger cars per mile per lane.
Source: Compiled by Fehr & Peers in 2008

PEDESTRIAN AND BICYCLE SYSTEM

Existing sidewalks within the vicinity of the project are located on the south side of Atherton Drive east of Union Road, on the east side of Union Road south of Atherton Drive, and on the north side of Woodward Avenue east of Union Road.

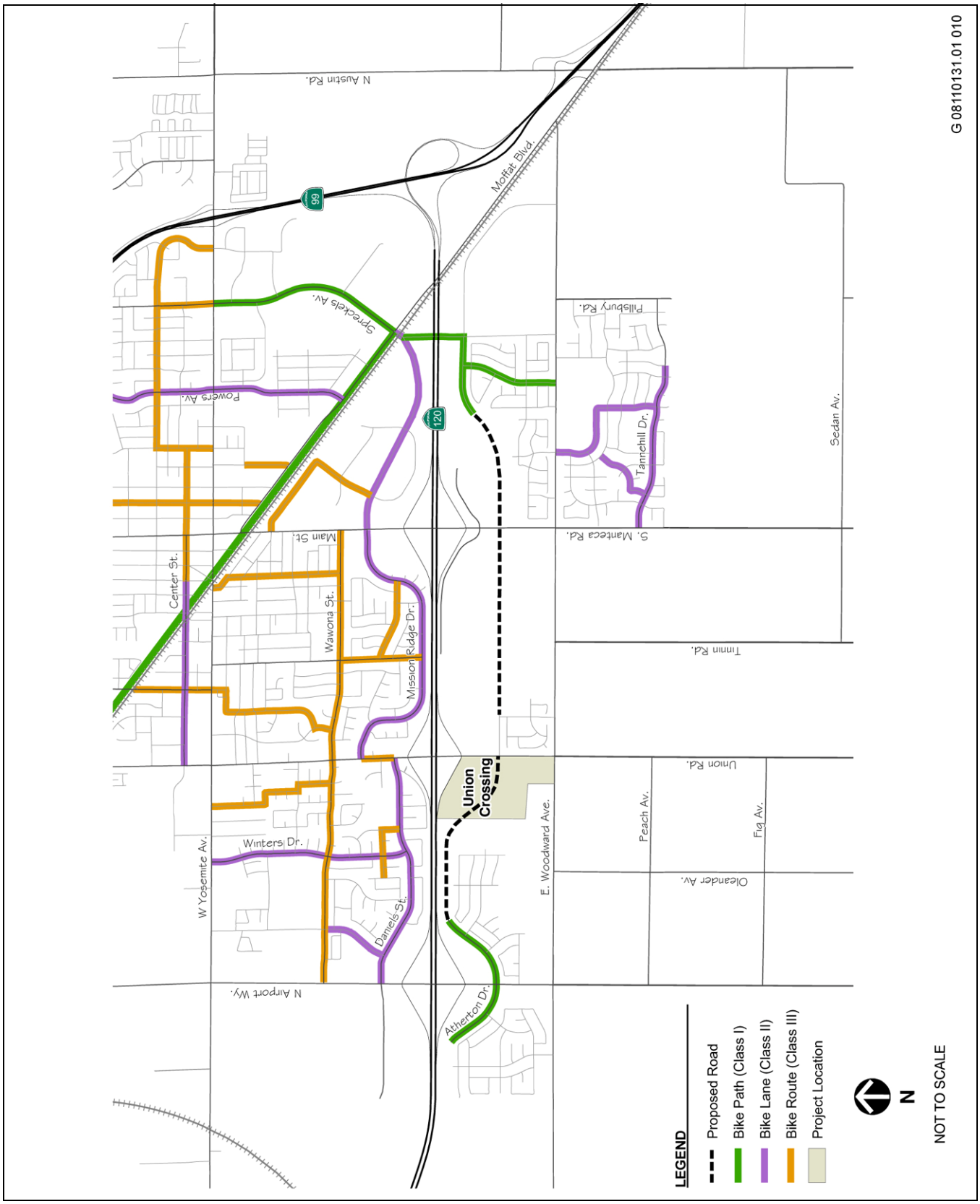
Along the frontage of the project site, all the roads are rural in character and there are no bike lanes or sidewalks. Exhibit 4.11-5 shows the existing bicycle facilities.

The Manteca Bicycle Master Plan shows proposed Class I Bike Paths on Atherton Drive between Airport Road and Main Street. A Class II Bike Lane is proposed on Union Road south of SR 120 past Woodward Avenue.

TRANSIT SYSTEM

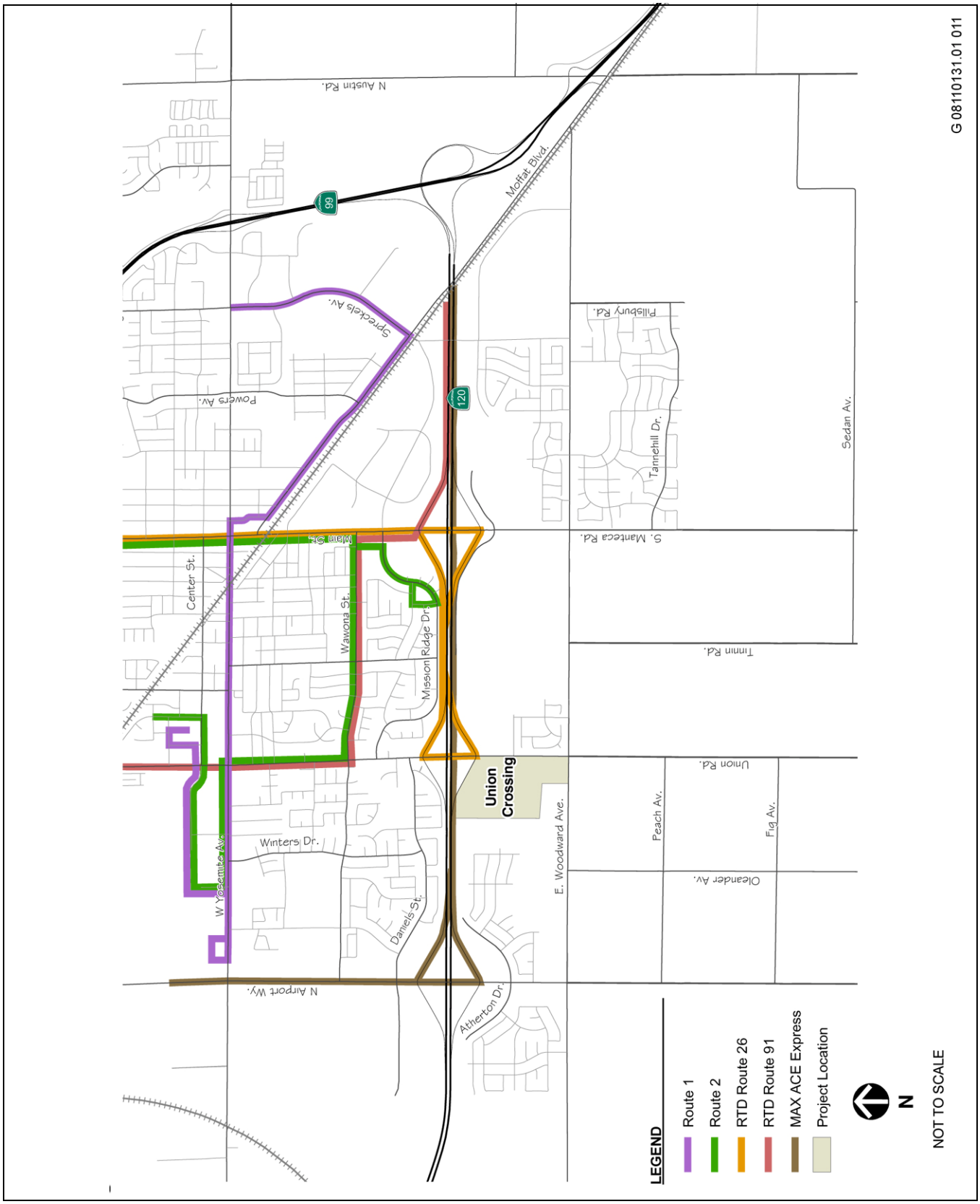
Several transit agencies provide service to the City of Manteca. These agencies include Manteca transit, which provides two fixed-route services and a Dial-A-Ride component; the San Joaquin Regional transit District (SJRTD) with fixed-route and flexible-response bus service in San Joaquin County; the Altamont Commuter Express (ACE), which operates a commuter rail service; and the Modesto Area Express (MAX), which operates fixed-route bus service between Modesto and the Lathrop-Manteca ACE Rail Station. Exhibit 4.11-6 shows the existing transit facilities near the project site.

SJRTD Route 26 passes within the vicinity of the project site; however, the nearest stop to the project site is at the corner of Main Street and Mission Ridge Drive.



Source: Fehr & Peers 2008

Existing Bicycle Facilities **Exhibit 4.11-5**



Source: Fehr & Peers 2008

Existing Transit Facilities **Exhibit 4.11-6**

CUMULATIVE NO PROJECT CONDITIONS

Cumulative no project conditions are based on traffic volumes obtained from the 2025 version of the San Joaquin Council of Governments (SJCOG) travel demand forecasting model. The following sections describe the procedure used to determine the cumulative traffic volumes and the results of the LOS analysis for cumulative conditions.

Traffic Estimates

The 2008 and 2025 versions of the SJCOG model were used to develop traffic volumes under Cumulative No Project Conditions. These versions of the SJCOG model were modified by Fehr & Peers to improve the performance of the models in the Manteca area. In both the 2008 and 2025 versions of the model, additional roadway network and land use detail was added within the cities of Manteca, Lathrop, and Ripon. The 2008 version of the model was also validated to traffic counts in the City of Manteca under daily, a.m. peak hour, and p.m. peak hour conditions. The project site was assumed to be vacant when developing Cumulative No Project Conditions traffic volumes.

The 2025 version of the SJCOG model was reviewed for the reasonableness of land use assumptions. Based on information from the City of Manteca Community Development Department, land uses in several traffic analysis zones were modified to reflect the most recent data.

To account for model error, a technique known as the *difference method* was used to develop Cumulative No Project traffic volume forecasts. The difference method adds model turning-movement forecasts to existing traffic count data based on the following formula:

Existing Turning Movement Volumes + (2025 SJCOG Turning Movement – 2008 SJCOG Turning Movement)

Exhibits 4.11-7a and 4.11-7b show the volumes for Cumulative No Project Conditions at the study intersections, as well as intersection lane configurations and traffic control devices.

Transportation System Improvements

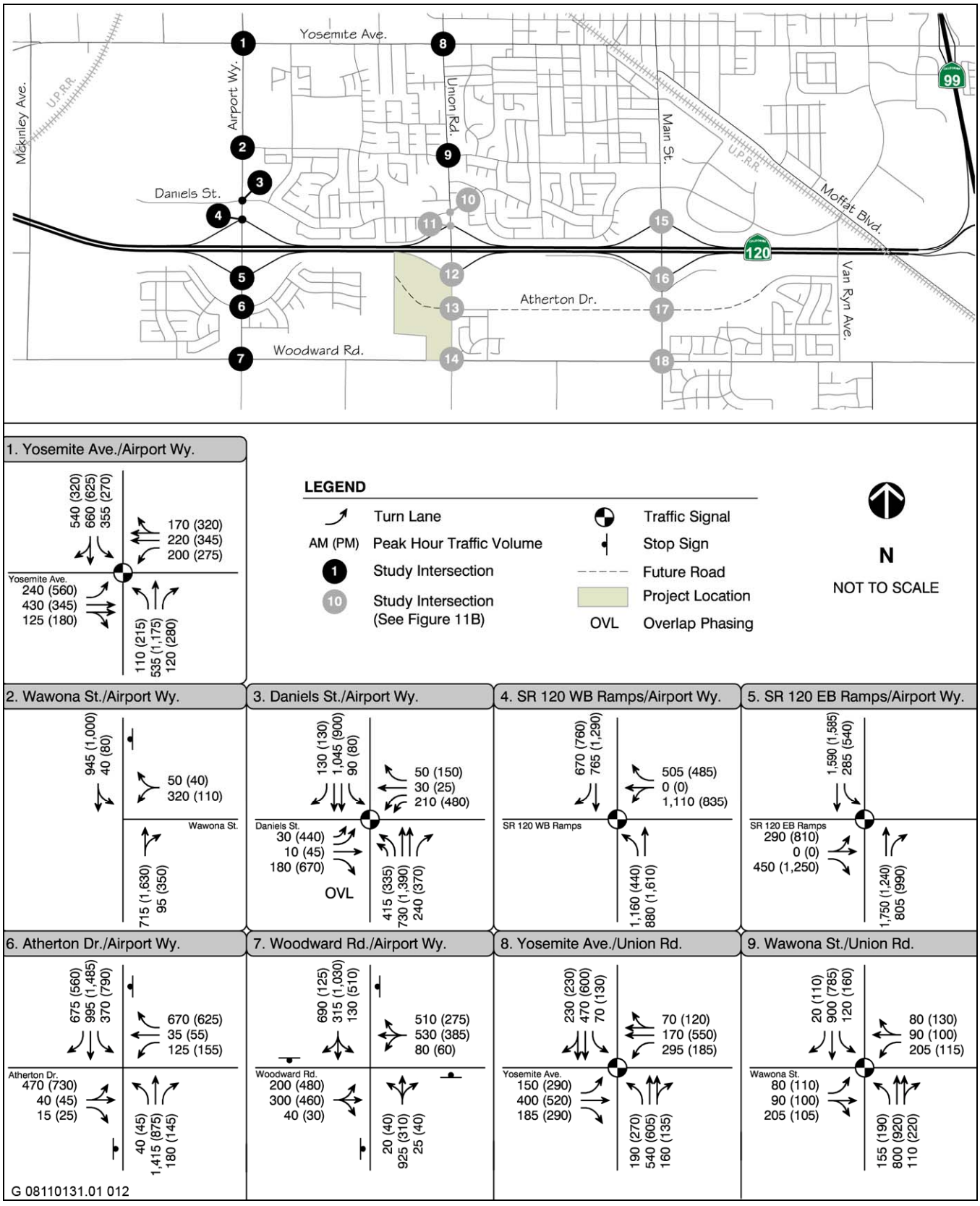
This section describes the improvements to the transportation system (roadways, bicycle, pedestrian, and transit) assumed under Cumulative Conditions.

Roadways

The City General Plan has identified a set of roadway improvements that correspond to buildout of the Land Use Element. However, as described above (see Section 4.11-1), the current PFIP fee covers only a portion of the total cost of designing and constructing these improvements. Therefore, adequate funding is not being collected to fully construct all the improvements included in the General Plan. Since full funding for future roadway improvements has not been identified and it is unknown when and which of these improvements would be constructed, these projects were not assumed to be constructed under Cumulative Conditions analysis.

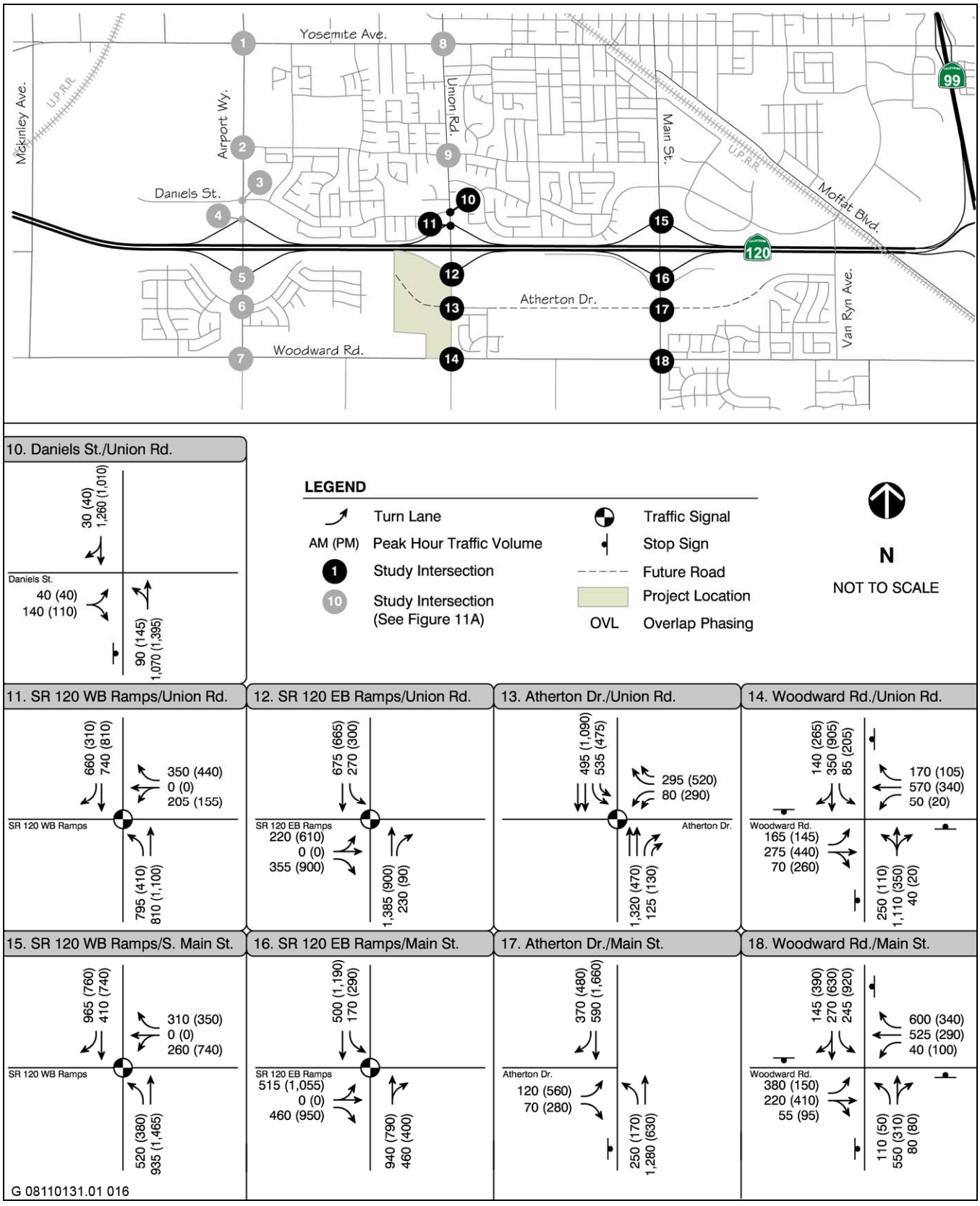
While the PFIP is not assumed to be fully funded, several local roadway projects with alternate funding sources have been or would be completed under Cumulative Conditions and prior to opening of the project:

- Intersection widening and signalization at the Airport Way/SR 120 ramp terminal intersections
- Intersection widening and signalization at the Union Road/SR 120 ramp terminal intersections
- Roadway widening of Union Road between SR 120 and Woodward Avenue to four lanes
- Intersection widening and signalization at the Union Road/Atherton Drive intersection
- Intersection widening at the Union Road/Woodward Avenue intersection
- Extension of Atherton Drive between Union Road and Main Street
- New unsignalized intersection at Main Street/Atherton Drive



Source: Fehr & Peers 2008

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Conditions **Exhibit 4.11-7a**



Source: Fehr & Peers 2008

Peak Hour Traffic Volumes and Lane Configurations – Cumulative Conditions **Exhibit 4.11-7b**

The cumulative analysis did not assume that Atherton Drive would be connected between Union Road and Airport Way. Volumes for the cumulative analysis of this segment were developed for the previously constructed length of Atherton Drive between Airport Way and Sparrowhawk Street.

In addition to local roadway improvements, SJCOG has included the widening of SR 120 from four to six lanes as a Tier 1 project in the Regional Transportation Plan. This improvement will be funded through a combination of regional transportation impact fees and the Measure K sales tax revenues. The widening of SR 120 was assumed when forecasting traffic volumes and also in all freeway and ramp analysis.

The City of Manteca, in cooperation with Caltrans District 10 and SJCOG, has initiated a Project Study Report (PSR) for the SR 120/Airport Way interchange and SR 120/Union Road interchange. The PSRs will determine the required interchange design to serve full buildout of the City General Plan and the planned widening of SR 120 from four to six lanes. The on-ramp and off-ramp designs will provide the necessary deceleration and storage lengths to serve projected morning and evening peak-hour volumes at acceptable LOS conditions. However, the City of Manteca is expected to fund a portion of the interchange and since the updated PFIP has not yet been adopted, these improvements were not assumed under Cumulative Conditions.

Pedestrian, Bicycle, and Transit Improvements

In general, pedestrian and bicycle improvements are added as part of new development in Manteca. Development is expected to occur along Union Road, Atherton Drive, and Woodward Avenue. In these locations, new sidewalks, and bike lanes/paths are expected to be constructed.

The SJCOG 2007 RTP notes that between 2007 and 2019, transit funding will allow for the "incremental development" of fixed route transit service in Manteca, Lodi, and Tracy. However, no details are given about which routes would change or where new routes would be located. Based on the limited funding available for transit, no new service is assumed near the project area under Cumulative Conditions.

Intersections

Intersection operations were evaluated under Cumulative No Project a.m. and p.m. peak hour conditions and the results are summarized in Table 4.11-9. The technical appendices contain the corresponding calculation sheets (Appendix H1). The intersection LOS analysis indicates that the majority of the study intersections are expected to operate at unacceptable levels during one or both of the peak hours, as summarized below:

- Airport Way and Yosemite Avenue (a.m. and p.m. peak hour)
- Airport Way and Wawona Street (a.m. and p.m. peak hour)
- Airport Way and Daniels Street (p.m. peak hour)
- Airport Way and the SR 120 westbound ramps (a.m. and p.m. peak hour)
- Airport Way and the SR 120 eastbound ramps (a.m. and p.m. peak hour)
- Airport Way and Atherton Drive (a.m. and p.m. peak hour)
- Airport Way and East Woodward Avenue (a.m. and p.m. peak hour)
- Union Road and West Yosemite Avenue (a.m. and p.m. peak hour)
- Union Road and Wawona Street (a.m. and p.m. peak hour)
- Union Road and Daniels Street (a.m. and p.m. peak hour)
- Union Road and the SR 120 westbound ramps (a.m. and p.m. peak hour)
- Union Road and the SR 120 eastbound ramps (a.m. and p.m. peak hour)
- Union Road and East Woodward Avenue (a.m. and p.m. peak hour)
- Main Street and the SR 120 westbound ramps (p.m. peak hour)
- Main Street and the SR 120 eastbound ramps (a.m. and p.m. peak hour)
- Main Street and Atherton Drive (a.m. and p.m. peak hour)
- Main Street and East Woodward Avenue (a.m. and p.m. peak hour)

Signal Warrants

A peak-hour signal warrant analysis was conducted for each of the seven unsignalized study intersections. The analysis applied the peak-hour traffic signal warrant recommended in the California MUTCD. Table 4.11-9 summarizes the signal warrant analysis. The technical appendices contain the corresponding calculation sheets (Appendix H1). The analysis indicates that under Cumulative Conditions, all of the unsignalized study intersections would meet peak hour signal warrant criteria during either the a.m. or p.m. peak hour.

Roadway Segments

Table 4.11-10 shows the results of the LOS analysis under Cumulative No Project Conditions. The LOS calculations indicate that all roadway segments are expected to operate at an acceptable LOS except for the following locations:

- Airport Way, between Woodward Avenue and McKinley Avenue
- Union Road, between Yosemite Avenue and Wawona Street
- Union Road, between SR 120 and Woodward Avenue
- Main Street, between Mission Ridge Drive and SR 120
- Main Street, between Woodward Avenue and Sedan Avenue
- Woodward Avenue, between Union Road and Main Street
- Woodward Avenue, between Main Street and Van Ryn Avenue

Cumulative No Project Conditions for roadway segments are also shown in Exhibit 4.11-8.

Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

The operations of the freeway mainline facilities were analyzed under Cumulative No Project Conditions and the results are shown in Table 4.11-11. The technical appendices contain the corresponding calculation sheets (Appendix H1).

The LOS analysis shows that even with the planned widening of SR 120 to six lanes, all studied freeway mainline segments are expected to operate at LOS E or F conditions under either a.m. or p.m. peak hour conditions.

The operations of the freeway on-ramp merge and off-ramp diverge segments were analyzed under Cumulative No Project Conditions and the results shown in Table 4.11-12. The technical appendices contain the corresponding calculation sheets (Appendix H1). All studied ramp junctions are expected to operate at LOS E or F conditions in the a.m. or p.m. peak hour.

4.11.2 REGULATORY SETTING

This section describes the regulatory setting and the terminology used throughout the report to describe the conditions of the transportation system with and without the proposed project. In addition, the existing transportation system near the project site is described. This description focuses on the roadway, transit, bicycle, and pedestrian systems.

FEDERAL AND STATE

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways in San Joaquin County. Federal highway standards are implemented in California by Caltrans.

Table 4.11-9
Cumulative No Project Intersection Levels of Service and Signal Warrants

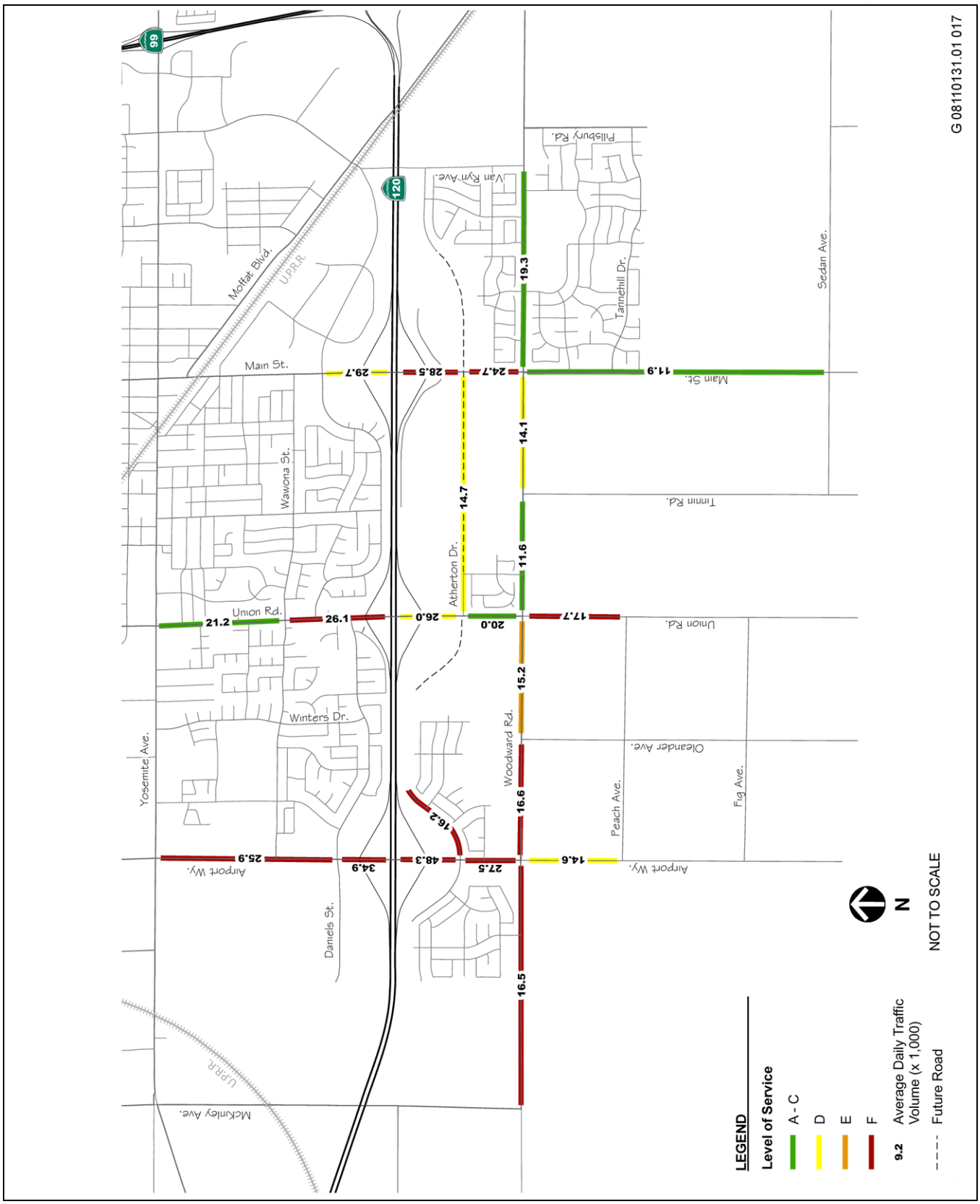
Intersection	Peak Hour	Intersection Control	Delay	LOS	Meets Warrant
1. Airport Way/Yosemite Avenue	a.m. p.m.	Signal	**>100**[1] **>100**	**F** **F**	N/A
2. Airport Way/Wawona Street	a.m. p.m.	Side Street Stop	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**
3. Airport Way/Daniels Street	a.m. p.m.	Signal	31 **>100**	C **F**	N/A
4. Airport Way/SR 120 WB	a.m. p.m.	Signal	**>100** **>100**	**F** **F**	N/A
5. Airport Way/SR 120 EB	a.m. p.m.	Signal	**>100** **>100**	**F** **F**	N/A
6. Airport Way/Atherton Drive	a.m. p.m.	Side Street Stop	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**
7. Airport Way/Woodward Avenue	a.m. p.m.	All-Way Stop	**>100** **>100**	**F** **F**	**Yes** **Yes**
8. Union Road/Yosemite Avenue	a.m. p.m.	Signal	**88** **68**	**F** **E**	N/A
9. Union Road/Wawona Street	a.m. p.m.	Signal	**99** **73**	**F** **E**	N/A
10. Union Road/Daniels Street	a.m. p.m.	Side Street Stop	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**
11. Union Road/SR 120 WB	a.m. p.m.	Signal	**>100** 44	**F** D	N/A
12. Union Road/SR 120 EB	a.m. p.m.	Signal	**>100** **>100**	**F** **F**	N/A
13. Union Road/Atherton Drive	a.m. p.m.	Signal	21 23	C C	N/A
14. Union Road/Woodward Avenue	a.m. p.m.	All-Way Stop	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**
15. Main Street/SR 120 WB	a.m. p.m.	Signal	50 **>100**	D **F**	N/A
16. Main Street/SR 120 EB	a.m. p.m.	Signal	**>100** **>100**	**F** **F**	N/A
17. Main St./Atherton Drive	a.m. p.m.	Side Street Stop	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**
18. Main Street/Woodward Avenue	a.m. p.m.	All-Way Stop	**>100** **>100**	**F** **F**	**Yes** **Yes**

Notes:
Bold highlighting denotes intersections with unacceptable operations (LOS E or F) that also meet peak-hour volume warrants.
[1] Delays greater than 100 seconds were reported as ">100" as HCM methodology is not accurate in extremely congested conditions. For actual HCM delay, see Appendix H1.
Source: Compiled by Fehr & Peers in 2008

Table 4.11-10
Cumulative No Project Roadway Volumes & Levels of Service

Roadway Segment	Lanes	Cumulative No Project	
		Volume[1]	LOS[2]
1. Atherton Drive, east of Airport Way	2	**16,200**	**F**
2. Atherton Drive, between Union Road and Main Street	2	**14,700**	**E**
3. Airport Way, between Yosemite Avenue and Daniels Street	2	**25,900**	**F**
4. Airport Way, between Daniels Street and SR 120	2	**34,900**	**F**
5. Airport Way, between SR 120 and Atherton Drive	2	**48,300**	**F**
6. Airport Way, between Atherton Drive and Woodward Avenue	2	**27,500**	**F**
7. Airport Way, between Woodward Avenue and McKinley Avenue	2	14,600	D
8. Union Road, between Yosemite Avenue and Wawona Street	4	21,200	C
9. Union Road, between Daniels Street and SR 120	2	**26,100**	**F**
10. Union Road, between SR 120 and Atherton Drive	4	26,000	D
11. Union Road, between Atherton Drive and Woodward Avenue	4	20,000	C
12. Union Road, between Woodward Avenue and Peach Avenue	2	**17,700**	**F**
13. Main Street, between Mission Ridge Drive and SR 120	4	29,700	D
14. Main Street, between SR 120 and Atherton Drive	2	**28,500**	**F**
15. Main Street, between Atherton Drive and Woodward Avenue	2	**24,700**	**F**
16. Main Street, between Woodward Avenue and Sedan Avenue	2	11,900	C
17. Woodward Avenue, between McKinley Avenue and Airport Way	2	**16,500**	**F**
18. Woodward Avenue, between Airport Way and Oleander Road	2	**16,600**	**F**
19. Woodward Avenue, between Oleander Road and Union Road	2	**15,200**	**E**
20. Woodward Avenue, between Union Road and Tinnin Road	2	11,600	C
21. Woodward Avenue, between Tinnin Road and Main Street	2	14,100	D
22. Woodward Avenue, between Main Street and Van Ryn Avenue	4	19,300	C

Notes:
[1] Average daily traffic
[2] LOS = Level of service
Source: Compiled by Fehr & Peers in 2008



Source: Fehr & Peers 2008

Average Daily Traffic Volumes and Roadway LOS – Cumulative Conditions **Exhibit 4.11-8**

Table 4.11-11
Cumulative No Project SR 120 and SR 99 Mainline Levels of Service

Travel Direction	Segment	Peak Hour[1]	Density (Vehicles per Miles per Lane)[2]	Level of Service
SR 120 eastbound	I-5 to Yosemite Avenue	a.m. p.m.	--[3] --	**F** **F**
	Yosemite Avenue to Airport Way	a.m. p.m.	32.7 --	D **F**
	Airport Way to Union Road	a.m. p.m.	**38.8** --	**E** **F**
	Union Road to Main Street	a.m. p.m.	**37.3** --	**E** **F**
	Main Street to SR 99	a.m. p.m.	31.7 --	D **F**
SR 120 westbound	SR 99 to Main Street	a.m. p.m.	-- --	**F** **F**
	Main Street to Union Road	a.m. p.m.	-- --	**F** **F**
	Union Road to Airport Way	a.m. p.m.	-- --	**F** **F**
	Airport Way to Yosemite Avenue	a.m. p.m.	-- --	**F** **F**
	Yosemite Avenue to I-5	a.m. p.m.	-- --	**F** **F**
SR 99 northbound	Jack Tone Road to Austin Road	a.m. p.m.	-- **43.2**	**F** **E**
	Austin Road SR 120	a.m. p.m.	Leisch	**E** **E**
	SR 120 to Yosemite Avenue	a.m. p.m.	Leisch	D **F**
	Yosemite Avenue to Lathrop Road	a.m. p.m.	-- **43.4**	**F** **E**
SR 99 southbound	Lathrop Road to Yosemite Avenue	a.m. p.m.	-- --	**F** **F**
	Yosemite Avenue to SR 120	a.m. p.m.	Leisch	**F** **F**
	SR 120 to Austin Road	a.m. p.m.	**41.4** --	**E** **F**
	Austin Road to Jack Tone Road	a.m. p.m.	**39.9** --	**E** **F**
	Austin Road to Jack Tone Road	a.m. p.m.	**39.9** --	**E** **F**

Notes:
[1] a.m. = morning peak hour, p.m. = evening peak hour.
[2] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Weaving sections analyzed using the Leisch Method do not have a resulting density.
[3] Per HCM methodology, no density is reported for freeway segments operating at LOS F.
Source: Fehr & Peers, 2008

Table 4.11-12
Cumulative No Project SR 120 Ramp Junction Levels of Service

Travel Direction	Ramp	Merge/Diverge	Peak Hour[1]	Density (Vehicles per Mile per Lane)[2]	Level of Service
SR 120 eastbound	Airport Way	Diverge (Off-ramp)	a.m.	**37.4**	**E**
			p.m.	**82.5**	**F**
		Merge (On-ramp)	a.m.	**36.0**	**E**
			p.m.	**68.7**	**F**
	Union Road	Diverge (Off-ramp)	a.m.	**40.9**	**E**
			p.m.	**77.3**	**F**
		Merge (On-ramp)	a.m.	**35.7**	**E**
			p.m.	**59.5**	**F**
SR 120 westbound	Union Road	Diverge (Off-ramp)	a.m.	**61.2**	**F**
			p.m.	**46.0**	**F**
		Merge (On-ramp)	a.m.	**62.2**	**F**
			p.m.	**40.6**	**F**
	Airport Way	Diverge (Off-ramp)	a.m.	**70.0**	**F**
			p.m.	**47.2**	**F**
		Merge (On-ramp)	a.m.	**63.8**	**F**
			p.m.	**42.0**	**F**

Notes:
[1] a.m. = morning peak hour, p.m. = evening peak hour.
[2] Density is based on HCS+ analysis and results are in passenger cars per mile per lane.
Source: Compiled by Fehr & Peers in 2008

LOCAL

San Joaquin County Regional Transportation Plan

San Joaquin County, through SJCOG, periodically updates the Regional Transportation Plan (RTP), which outlines countywide transportation expenditures based on funding from sources like the federal government, the State of California, and locally collected funds. The current SJCOG RTP (2007) contains several proposed improvements that would benefit the regional roadway network near the project site which include widening SR 99 from four to six lanes between SR 120 in Manteca and SR 4 in Stockton and widening SR 120 from four to six lanes between Interstate 5 (I-5) and SR 99.

San Joaquin County Congestion Management Program

The San Joaquin County Congestion Management Program requires SJCOG to create, manage, and update a countywide Congestion Management Plan (CMP). The purpose of the CMP is to establish LOS standards for a defined set of freeways, highways, and local roads; and to maintain or achieve those standards by increasing capacity of these roads and/or managing travel demand.

The facilities governed by the CMP included in this study are listed with their LOS standard below:

- SR 120 between Yosemite Avenue and SR 99 – LOS F
- Airport Way – LOS D

However, Caltrans does not support the LOS F designation for SR 120 and prefers to use a LOS D standard.

San Joaquin County Regional Traffic Impact Fee

SJCOG has implemented a regional traffic impact fee that is assessed on developments throughout San Joaquin County. The adopted fee was originally set at $2,500 per dwelling unit, $1.00 per square foot for retail development, and $1.25 per square foot for office development, but is adjusted annually to account for inflation.

Measure K

Measure K is a San Joaquin County measure that funds transportation projects through a half-cent sales tax. Measure K includes funds for expanding SR 99 to six lanes between Manteca and Stockton, expanding SR 120 to six lanes between I-5 and SR 99.

City of Manteca General Plan

The City of Manteca General Plan (City of Manteca 2003a) includes the following policies related to transportation and circulation that are relevant to this analysis:

Street System

- **Policy C-P-1:** The City shall strive to attain the highest possible traffic levels of service (LOS) consistent with the financial resources available and the limits of technical feasibility. The impact of new development and land use proposals on LOS should be considered in the review process.

- **Policy C-P-2:** Manteca's target for transportation LOS is to provide a Citywide average of LOS of C or better, and a minimum of LOS D at any individual location. This "C average, D minimum" shall be accomplished by attempting to provide LOS C at all locations, but accepting LOS D under the following circumstances:

    a. Where constructing facilities with enough capacity to provide LOS C is found to be unreasonably expensive. This applies to facilities, for example, on which it would cost significantly more per dwelling unit equivalent (DUE) to provide LOS C than to provide LOS D.

    b. Where it is difficult or impossible to maintain LOS C because surrounding facilities in other jurisdictions operate at LOS D or worse.

    c. Where free-flowing roadways or interchange ramps would discourage use of alternate travel modes.

    d. Where maintaining LOS C will be a disincentive to use of existing alternative modes or to the implementation of new transportation modes that would reduce vehicle travel.

- **Policy C-P-3:** Streets shall be dedicated, widened, extended, and constructed according to the Street cross-section diagrams established in the City Improvement Standards. Dedication and improvement of full rights-of-way as shown in the Street Standards shall not be required in existing developed areas where the City determines that such improvements are either infeasible or undesirable.

- **Policy C-P-5:** Development that would necessitate roadway improvements prior to the development of lands abutting those roadway improvements shall be required to make such improvements, or participate in such improvements, as a condition of approval.

- **Policy C-P-6:** New development will pay a fair share of the costs of street and other traffic and transportation improvements based on traffic generation and impacts on levels of service in conformance with the standards and policies established in the Public Facilities Implementation Plan (PFIP).

- **Policy C-P-18:** In accord with the PFIP, the City shall assess development fees for traffic signals and highway interchanges sufficient to fund system-wide improvements. The development fee schedule for these traffic improvements shall be periodically reviewed, and revised as necessary.

The City also requires new development to participate in the funding and construction of collector and arterial street improvements identified in the City's Street Master Plan.

Parking

- **Policy C-P-26:** The City shall require all new development to provide an adequate number of off-street parking spaces to accommodate the typical parking demands of the type of development on the site.
- **Policy C-P-29:** Ensure that there is adequate parking for normal commercial activities.
- **Policy C-P-30:** Ensure that there is adequate parking for special events.
- **Policy C-P-31:** Coordinate the parking area locations with the roadway, transit, pedestrian, and bikeway systems.

Bikeways and Pedestrian Paths

- **Policy C-P-33:** The City shall establish a safe and convenient network of identified bicycle routes connecting residential areas with recreation, shopping, and employment areas within the City.
- **Policy C-P-35:** Route sidewalks so that they connect to major public parking areas, transit stops, and intersections within the bikeway system.
- **Policy C-P-36:** Provide adequate bicycle parking facilities at commercial, business/professional, and light industrial uses.
- **Policy CD-P-31:** The pedestrian and bikeway system shall be linked to other pedestrian and bikeways in adjacent neighborhoods and ultimately, to the City-wide Pedestrian and Bikeway trail System to provide a continuous interconnected system.

City of Manteca Bicycle Master Plan

The City of Manteca Bicycle Master Plan (City of Manteca 2003b) includes the following policies related to bicycle circulation in new development areas that are relevant to this analysis:

- Require new development to construct bikeways included in the proposed system along all roadways included within or adjacent to that development.
- Require new development to provide support facilities such as bicycle racks, personal lockers, and showers at appropriate locations such as parks, major recreational destinations, park-and-ride facilities, employment centers, schools, and commercial centers.
- Provide bicycle crossings at appropriate intervals along new roadways that will adequately serve new large-scale commercial, office, industrial, and residential development.
- Require new development to incorporate parks and schools as important destinations for bicyclists when designing circulation plans for subdivisions and other developments.

City of Manteca Public Facilities Implementation Plan

The City of Manteca's Public Facilities Implementation Plan (PFIP) (City of Manteca 1993) is the implementing document for the City's General Plan policies on public facilities. The purpose of the PFIP is to ensure that public facilities are adequate as the City grows, and that they are developed in accordance with the City's General Plan. The PFIP is based on the City's individual water, sewer collection, drainage, and transportation facilities master plans. Under the PFIP, development impact fees are collected at or near the time of development and are used to finance the expansion and capacity of public facilities (i.e., water, sewer collection, drainage, and transportation) necessary to accommodate the new demands. Public improvements are timed to ensure the LOS targets for each service are reasonably maintained.

Since the 1993 PFIP was not indexed to inflation, the current fees do not cover the costs of building the required infrastructure. The City is currently updating the PFIP to develop a new list of infrastructure projects and a revised fee. It is envisioned that the updated PFIP fee would cover the costs of city roadway and interchange improvements needed to accommodate growth through 2023. However, since the updated PFIP has not yet been adopted by the City Council (adoption is expected in 2009), it is unknown whether the updated PFIP would cover the full cost of constructing all the projects identified in the PFIP project list.

4.11.3 ENVIRONMENTAL IMPACTS

This section presents the thresholds of significance criteria based on the City General Plan (City of Manteca 2003a), the City of Manteca transportation Impact Analysis Guidelines (City of Manteca 2008), and the SJCOG Regional transportation Plan (RTP) (SJCOG 1996). This section also presents the existing plus project and cumulative plus project impact analysis as well as the identification of significant impacts and recommended mitigation measures.

ANALYSIS METHODOLOGY

The impacts of the proposed commercial development on the surrounding local and regional roadway system, pedestrian and bicycle facilities, and transit service are discussed in this section. First, the methodology used to estimate the amount of traffic generated by the project is described. Then, the results of the LOS calculations for existing plus project and cumulative plus project conditions are presented.

As described previously, the proposed project would include the construction of 450,000 square feet of retail development on approximately 48.5 acres. The project site is located west of Union Road between SR 120 and Woodward Avenue. The site plan (see Exhibit 4.11-2) shows access to the project would occur from Union Road, Woodward Avenue, and the proposed segment of Atherton Drive. As part of the proposed project, traffic signals would be constructed at the intersection of Union Road and Atherton Drive and at the intersection of Atherton Drive and the main Union Crossing site access. The project also includes the widening of Union Road to 4-lanes from the SR 120 eastbound ramps intersection to Woodward Avenue.

Traffic Estimates

The amount of traffic added to the roadway system by the proposed development is estimated using a two-step process: (1) trip generation and (2) trip distribution/trip assignment. The first step estimates the amount of added traffic to the roadway network. The second step estimates the general direction of travel to and from the project site and the roads and intersections the project generated traffic is expected to use.

Trip Generation

The number of vehicle trips added to the surrounding roadway system by the proposed retail land use was estimated by applying a.m. and p.m. peak hour trip-generation rates from *Trip Generation* (7th Edition, Institute of transportation Engineers 2003). Although the 8th edition of *Trip Generation* was released in late 2008, retail

trip generation rates are very similar to the 7th edition. Trip-generation estimates were based on a previous site plan that included 455,000 square feet of retail development; however, the revised site plan includes only 450,000 square feet. Trip-generation was not modified to reflect this change and is considered slightly conservative for the purpose of traffic analysis.

Table 4.11-13 shows the daily and peak hour trip-generation estimates before and after accounting for different types of reductions. Internalization reductions include "trips from a land use within a multi-use development to another land use within the same multi-use development" (*Trip Generation Handbook*, ITE 2004). Pass-by reductions account for trips that are "made as intermediate stops on the way from an origin to a primary trip destination without a route diversion" (*Trip Generation Handbook*, ITE 2004). Diverted link reductions include trips "that are attracted from the traffic volume on roadways within the vicinity of the generator but that require a diversion from that roadway to another roadway to gain access to the site" (*Trip Generation Handbook*, ITE 2004); in the case of the Union Crossing project, diverted link trips are diverted from SR 120. With all reductions considered, the Union Crossing project expected to generate 16,916 new daily trips, 371 new a.m. peak hour trips, and 1,358 new p.m. peak hour trips.

Table 4.11-13
Project Trip Generation

Land Use	Size (ksf)	Daily Trip End Volume (Daily Rate)	a.m. Peak Hour Volume (a.m. Rate)			p.m. Peak Hour Volume (p.m. Rate)		
			In	Out	Total	In	Out	Total
North Development	229.2	11,689 (51.0)	158	101	259 (1.13)	521	565	1,086 (4.74)
South Development	225.8	11,516 (51.0)	155	100	255 (1.13)	514	556	1,070 (4.74)
Gross Trips		23,205 (51.0)	313	201	514 (1.13)	1,035	1,121	2,156 (4.74)
Internalization Reduction (10%)[1]	Reduction:	<2,321>	<31>	<20>	<51>	<104>	<112>	<216>
Pass-By Reduction (10%)[2]	Reduction:	<2,088>	<28>	<18>	<46>	<93>	<101>	<194>
Diverted Link Trip Reduction (10%)	Reduction:	<1,880>	<28>	<18>	<46>	<186>	<202>	<388>
New Trips:		**16,916**	**226**	**145**	**371**	**652**	**706**	**1,358**

Notes:
[1] Internalization includes trips that travel between the north and south sites. Trip generation rates for the north site and south site were estimated independently resulting in higher trip generation rates than would be expected for the entire site. The estimated 10% internalization reduction is supported by this difference in trip generation rates.
[2] Pass-by reductions were estimated at 10% for a.m. peak hour, p.m. peak hour, and daily trip generation. Pass-by reductions are normally higher in the p.m. peak hour, however, counts showed that there was not currently enough volume on Union Road to support higher pass-by reductions.
Source: Compiled by Fehr & Peers in 2008

Trip Distribution and Assignment

The expected distribution of external project trips was determined based on output from the SJCOG TDF model, observations of travel patterns within the vicinity of the site, knowledge of future development to occur in the area, and cumulative year traffic forecasts. As a result of increased development in Manteca, especially south of SR 120, the distribution of external project trips differed between existing plus project conditions and cumulative plus project conditions. The trip distributions reflect this shift in directionality; the amount of project traffic that stays south of SR 120 increases between the existing plus project and cumulative plus project scenarios from 14%

to 42%. The existing plus project and cumulative plus project trip distribution patterns for the project are shown in Exhibit 4.11-9 and Exhibit 4.11-10, respectively.

Based on this trip distribution pattern, project trips were assigned to the nearby roadways. traffic assignment was based on the results from the SJCOG TDF model and the assignment patterns suggested by existing conditions traffic counts and cumulative conditions traffic forecasts.

THRESHOLDS OF SIGNIFICANCE

Roadway Facilities

The City of Manteca has established a set of transportation Impact Analysis Guidelines (City of Manteca 2003a) to determine the significance of impacts related to land use development and infrastructure improvements. The guidelines determine the level of project generated traffic that triggers the need to study a facility (also used in defining the study area), and the traffic delay and level of service thresholds that constitute a project related significant impact.

Based on the City of Manteca transportation Impact Analysis Guidelines, an impact to roadway facilities is determined to be significant when one of the following happens:

Intersections

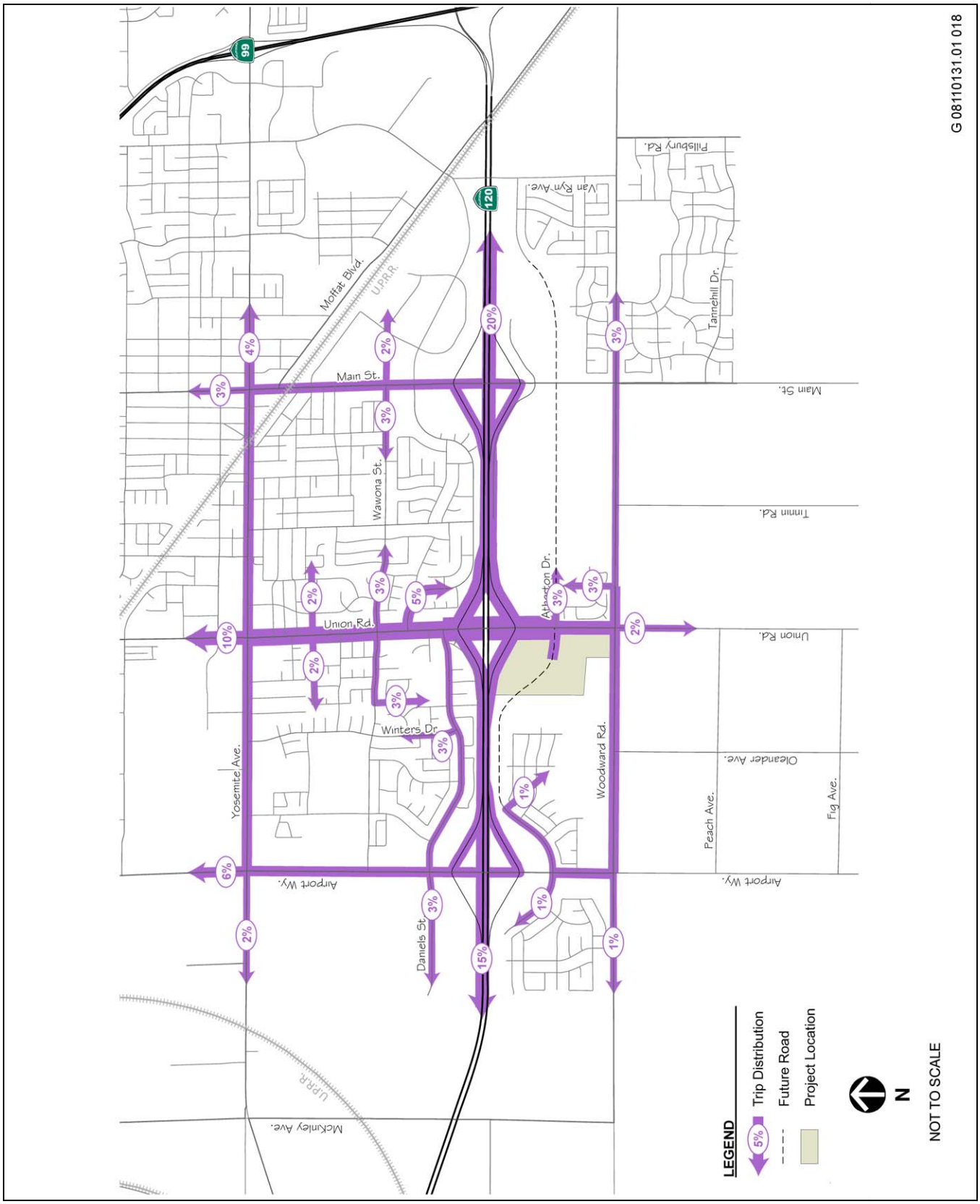
A project causes an intersection operating at an acceptable LOS under Existing or Cumulative No Project Conditions to degrade to an unacceptable LOS (as defined by City of Manteca, SJCOG, or Caltrans LOS guidelines). Policy C-P-2 of the Manteca General Plan further defines acceptable and unacceptable LOS:

- **Policy C-P-2:** Manteca's target for transportation LOS is to provide a Citywide average of LOS of C or better, and a minimum of LOS D at any individual location. This "C average, D minimum" shall be accomplished by attempting to provide LOS C at all locations, but accepting LOS D under the following circumstances:
  a. Where constructing facilities with enough capacity to provide LOS C is found to be unreasonably expensive. This applies to facilities, for example, on which it would cost significantly more per dwelling unit equivalent (DUE) to provide LOS C than to provide LOS D.
  b. Where it is difficult or impossible to maintain LOS C because surrounding facilities in other jurisdictions operate at LOS D or worse.
  c. Where free-flowing roadways or interchange ramps would discourage use of alternate travel modes.
  d. Where maintaining LOS C will be a disincentive to use of existing alternative modes or to the implementation of new transportation modes that would reduce vehicle travel.

For the purposes of identifying impacts and recommending mitigation measures at intersections, LOS E or worse was considered unacceptable.

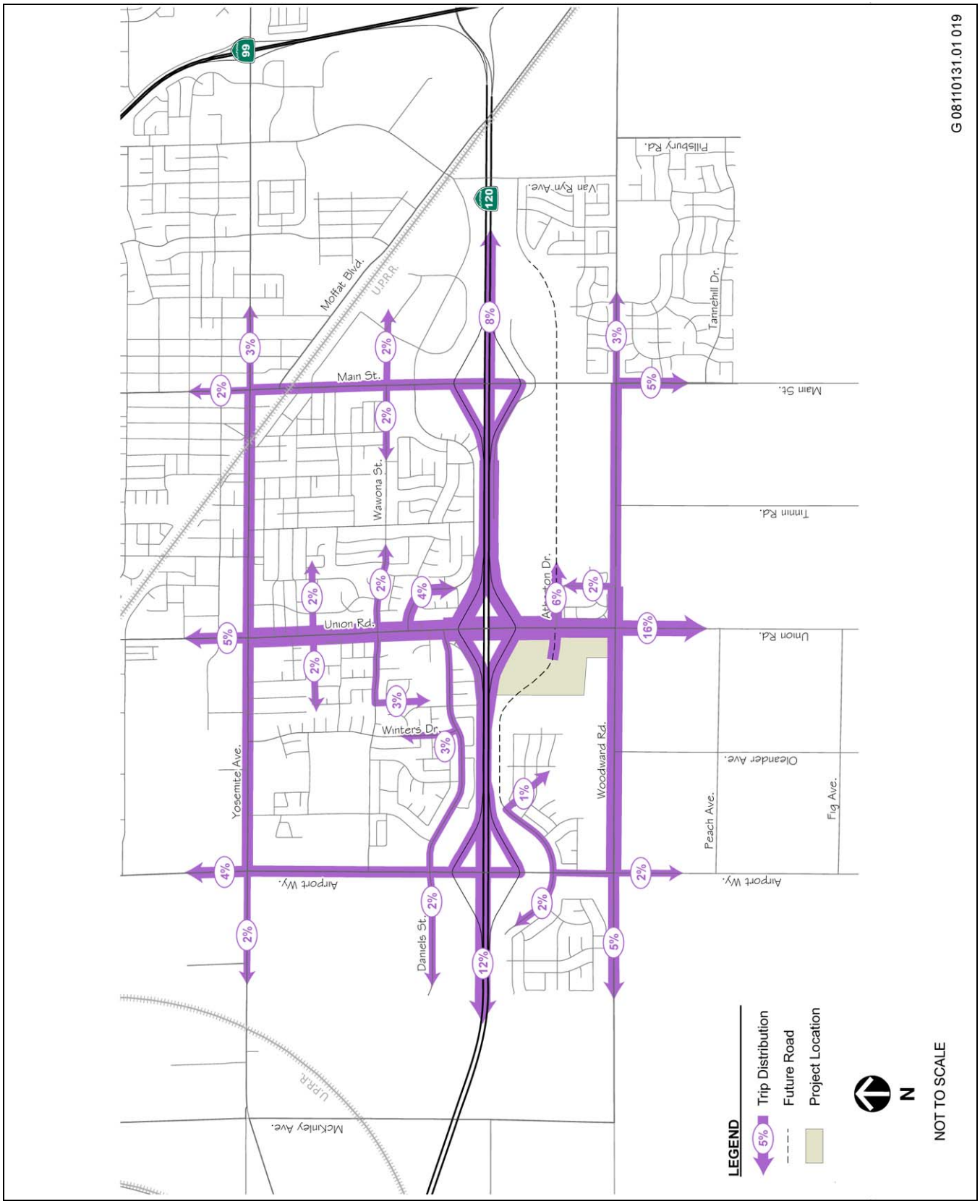
A project is said to impact an intersection operating at an unacceptable LOS under Existing or Cumulative No Project Conditions, if:

- The addition of project traffic increases the average vehicle delay for a signalized intersection by three (3) seconds or more, or
- The addition of project traffic increases the average delay for an all-way stop-controlled intersection by three (3) seconds or more and the intersection meets the one hour peak hour signal warrant, or
- The addition of project traffic increases the highest delayed side-street movement for a side-street stop-controlled intersection by three (3) seconds or more and the intersection meets the one hour peak hour signal warrant.



Source: Fehr & Peers 2008

Vehicle Trip Distribution – Existing Conditions **Exhibit 4.11-9**



Source: Fehr & Peers 2008

Vehicle Trip Distribution – Cumulative Conditions **Exhibit 4.11-10**

Freeway Mainline & Ramp Facilities

A project would impact a freeway mainline segment, a ramp merge junction, or a ramp diverge junction if the addition of project traffic causes a freeway facility operating at an acceptable LOS under Existing or Cumulative No Project Conditions to degrade to an unacceptable LOS (as defined by SJCOG or Caltrans LOS guidelines). For the purposes of identifying impacts and recommending mitigation measures on freeway mainline facilities, LOS E or worse was considered unacceptable.

For freeway facilities operating at an unacceptable LOS under Existing or Cumulative No Project Conditions, an impact is said to occur if the addition of project traffic increases the measure of effectiveness (passenger cars per mile per lane, pc/mi/ln) by 0.1 or more.

Roadway Segments

The Manteca transportation Impact Analysis guidelines do not include thresholds for roadway segment impacts. However, based on the guidelines set forth for intersections, an impact on a roadway segment would be significant if one of the following occurs:

- The addition or project traffic causes a roadway segment operating at an acceptable LOS to degrade to an unacceptable LOS; or
- The addition of project traffic causes the volume to capacity ratio of a roadway operating at an unacceptable LOS under "no project" conditions to increase by 0.03 or more.

For the purposes of identifying impacts and recommending mitigation measures at intersections, LOS E or worse was considered unacceptable.

Pedestrian, Bicycle, and Transit Systems

The pedestrian, bicycle, and transit operations were analyzed to determine whether the project would create a significant impact on any of these facilities. The following criteria were used to analyze the impacts. As significant impact would occur if the project would:

Transit System

- Create a demand for public transit service above that which is provided or planned to be provided.
- Disrupt or interfere with existing or planned public transit services or facilities.
- Create an inconsistency with policies concerning transit systems set forth in the City General Plan.

Bicycle and Pedestrian

- Disrupt or interfere with existing or planned bicycle or pedestrian facilities.
- Create an unmet need for bicycle or pedestrian facilities.
- Create an inconsistency with policies related to bicycle or pedestrian systems set forth in the City General Plan.

Existing Plus Project Conditions

Intersection LOS and Peak Hour Signal Warrant Analysis

The project trips described above were added to existing traffic volumes to establish intersection, roadway segment, and freeway volumes for the existing plus project scenario. Exhibits 4.11-11a and 4.11-11b summarize the peak hour turning movement and volumes for existing plus project conditions.

Intersection LOS was calculated with the project-generated traffic to evaluate the operating conditions of the intersections and identify potential impacts to the roadway system. The results of the intersection LOS

calculations for existing plus project conditions (Exhibit 4.11-12) are shown in Table 4.11-14 shows that the following intersections would operate at an unacceptable LOS E or F during the a.m. or p.m. peak hour:

- Airport Way and Wawona Street (p.m. peak hour)
- Airport Way and SR 120 westbound Ramps (p.m. peak hour)
- Airport Way and SR 120 eastbound Ramps (p.m. peak hour)
- Union Road and Daniels Street (a.m. and p.m. peak hour)
- Union Road and SR 120 westbound Ramps (a.m. and p.m. peak hour)
- Union Road and SR 120 eastbound Ramps (a.m. and p.m. peak hour)

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for existing plus project conditions, as shown in Table 4.11-14.

Roadway Segments

Table 4.11-15 shows the results of the roadway segment LOS analysis under existing plus project conditions. The LOS calculations indicate that all roadway segments are expected to operate at an acceptable LOS except for the segment of Union Road between Daniels Street and SR 120, which is expected to operate at LOS F.

Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

Freeway mainline and ramp junction LOS analyses were conducted with the addition of project-generated traffic and the results are summarized in Tables 4.11-16 and 4.11-17, respectively. The technical appendices contain the corresponding calculation sheets (Appendix H1). The LOS calculations indicate that the addition of project traffic does not degrade any freeway facility operations to an unacceptable level at any of the study facilities.

Bicycle and Pedestrian Facilities

The City of Manteca Bicycle Master Plan shows the following proposed improvements within the vicinity of the proposed project:

- A proposed Class I bike path on Atherton Drive between Airport Way and Union Road.
- A proposed Class II bike lane on Union Road between Daniels Street and Woodward Avenue.

The site plan, contained in the technical appendices (Appendix H1), shows the proposed Class I bike path on the north side of Atherton Drive. It also shows the Class II bike lane proposed on Union Road south of SR 120.

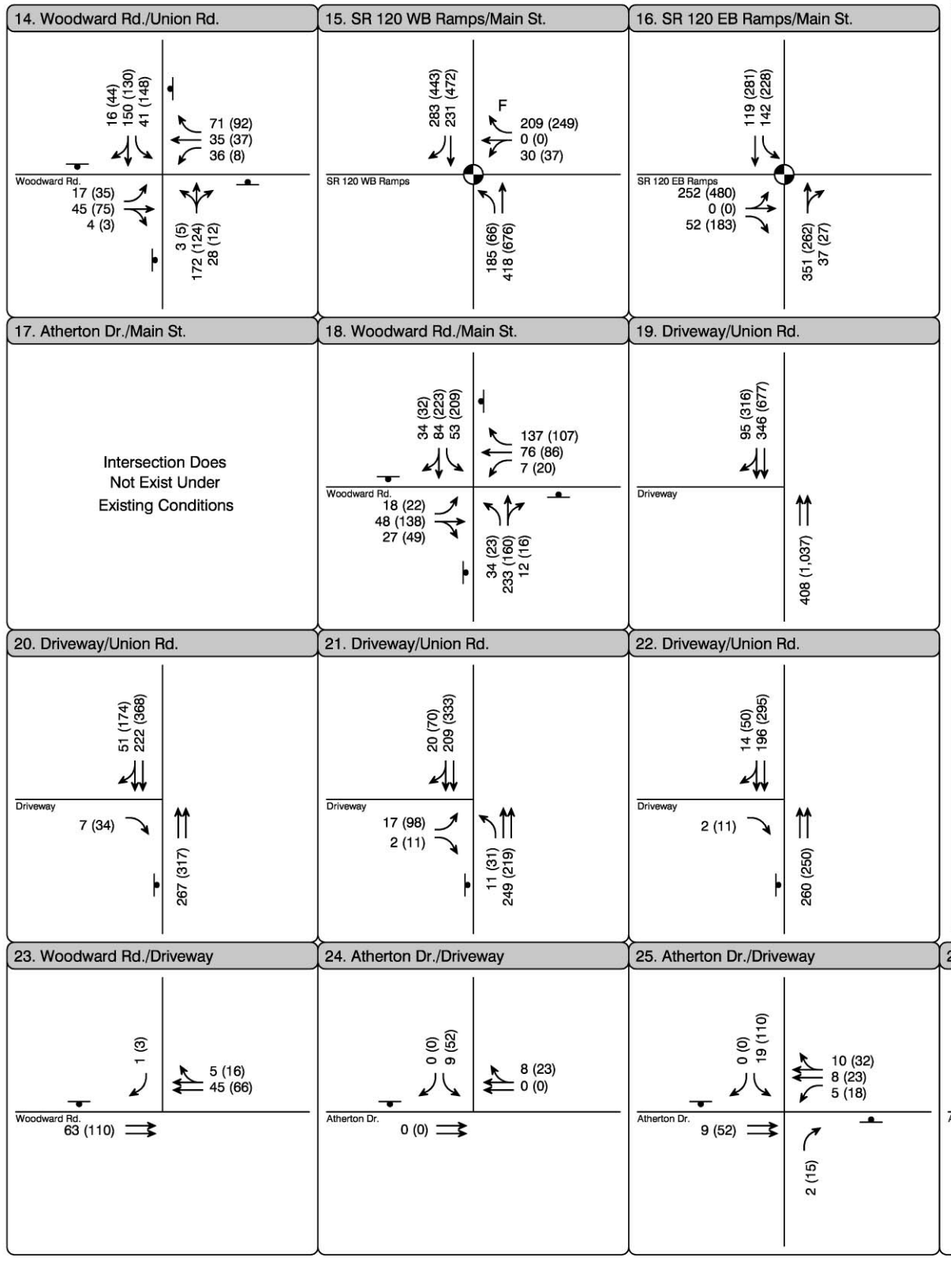
The City of Manteca also has standard cross-sections (vehicle lanes, bicycle lanes, curb/gutter, sidewalk, Class I bike paths) for new roadways constructed within City limits. The project includes sidewalks along the project boundaries of Union Road, Atherton Drive, and Woodward Avenue.



Source: Fehr & Peers 2008

Peak-Hour Traffic Volumes and Lane Configurations –Existing Plus Project Conditions

Exhibit 4.11-11a





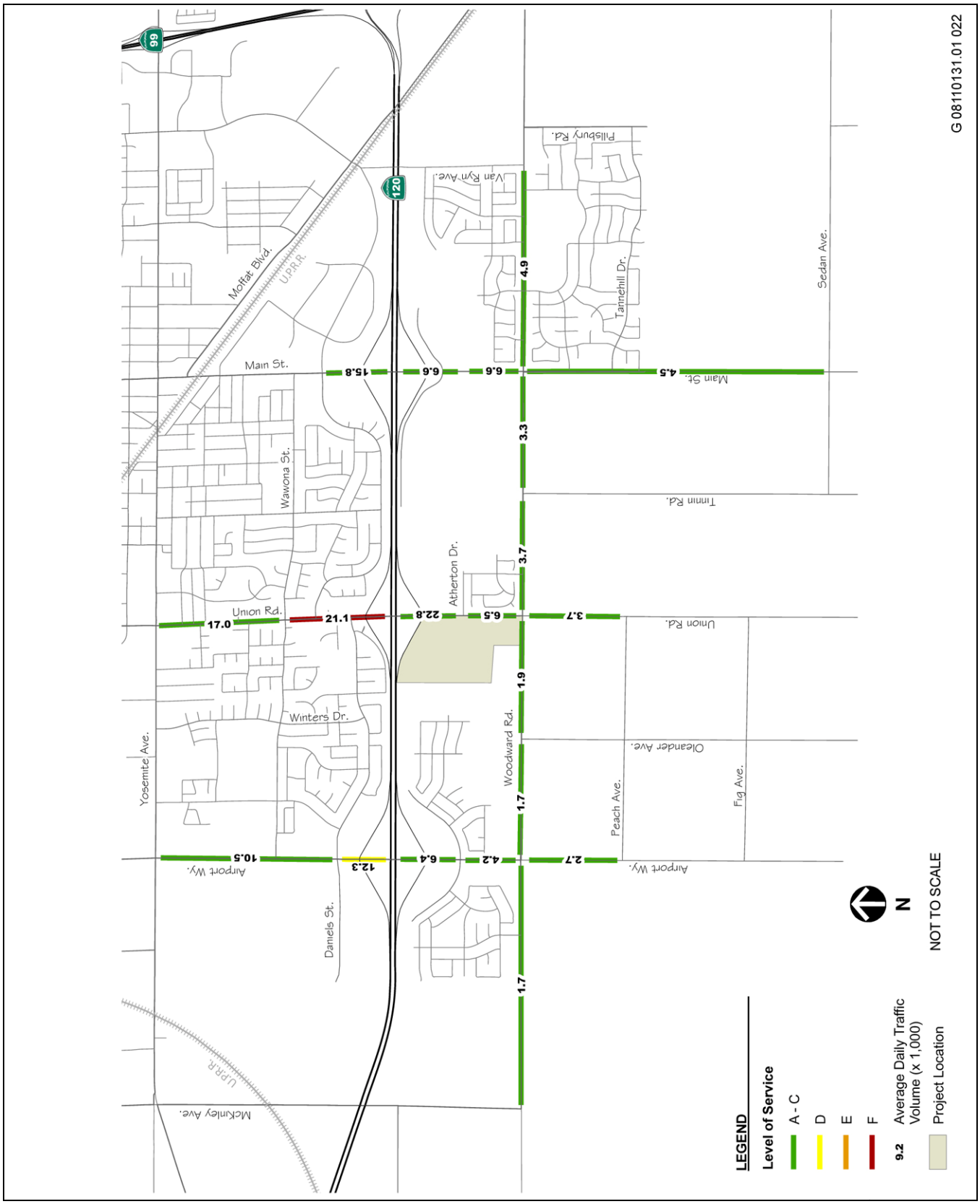


LEGEND

- Project Location
- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection (Grey: See Figure 4.11-11A)
- 21 Study Driveway
- Traffic Signal
- Stop Sign
- Future Road
- F "Free" Right Turn
- OVL Overlap Phasing
- N
- NOT TO SCALE

Source: Fehr & Peers 2008

Peak-Hour Traffic Volumes and Lane Configurations –Existing Plus Project Conditions **Exhibit 4.11-11b**



Source: Fehr & Peers 2008

Average Daily Traffic Volumes and Roadway Level of Service –Existing Plus Project Conditions **4.11-12**

Table 4.11-14
Existing Plus Project Intersection Levels of Service and Signal Warrants

Intersection	Peak Hour	Existing		Plus Project		Meets Warrant	Significant Impact
		Delay	LOS	Delay	LOS		
1. Airport Way/Yosemite Avenue	a.m.	29	C	29	C	N/A	No
	p.m.	36	D	36	D		
2. Airport Way/Wawona Street	a.m.	3 (18)	C	3 (18)	C	No	No
	p.m.	**4 (48)**	**E**	**5 (58)**	**F**	No	
3. Airport Way/Daniels Street	a.m.	18	B	17	B	N/A	No
	p.m.	19	B	24	C		
4. Airport Way/SR 120 WB[1]	a.m.	7 (27)	D	7 (28)	D	No	**Yes**
	p.m.	**>100 (>100)**	**F**	**>100 (>100)**	**F**	**Yes**	
5. Airport Way/SR 120 EB[1]	a.m.	5 (24)	C	5 (25)	D	No	**Yes**
	p.m.	**>100 (>100)**	**F**	**>100 (>100)**	**F**	**Yes**	
6. Airport Way/Atherton Drive	a.m.	7 (19)	C	7 (19)	C	No	No
	p.m.	5 (24)	C	6 (28)	D	No	
7. Airport Way/Woodward Avenue	a.m.	9	A	9	A	No	No
	p.m.	9	A	10	B	No	
8. Union Road/Yosemite Avenue	a.m.	25	C	25	C	N/A	No
	p.m.	40	D	53	D		
9. Union Road/Wawona Street	a.m.	26	C	29	C	N/A	No
	p.m.	27	C	43	D		
10. Union Road/Daniels Street	a.m.	**3 (36)**	**E**	**5 (51)**	**F**	**Yes**	**Yes**
	p.m.	**5 (64)**	**F**	**30 (>100)**	**F**	**Yes**	
11. Union Road/SR 120 WB	a.m.	3 (24)	C	**35 (>100)**	**F**	**Yes**	**Yes**
	p.m.	**10 (48)**	**E**	**>100 (>100)**	**F**	**Yes**	
12. Union Road/SR 120 EB	a.m.	**9 (43)**	**E**	**27 (>100)**	**F**	No	**Yes**
	p.m.	**>100 (>100)**	**F**	**>100 (>100)**	**F**	**Yes**	
13. Union Road/Atherton Drive[2]	a.m.	1 (10)	B	19	B	N/A	No
	p.m.	1 (11)	B	32	C		
14. Union Road/Woodward Avenue	a.m.	11	B	9	A	No	No
	p.m.	9	A	10	A	No	
15. Main Street/SR 120 WB	a.m.	8	A	8	A	N/A	No
	p.m.	8	A	5	A		
16. Main Street/SR 120 EB	a.m.	21	C	19	B	N/A	No
	p.m.	24	C	29	C		
18. Main Street/Woodward Avenue	a.m.	10	B	10	B	No	No
	p.m.	12	B	12	B	No	
19. Union Road/Project Access	a.m.	N/A		1 (1)	A	N/A	No
	p.m.			1 (1)	A		
20. Union Road/Project Access	a.m.	N/A		1 (9)	A	N/A	No
	p.m.			1 (10)	A		
21. Union Road/Project Access	a.m.	N/A		1 (12)	B	No	No
	p.m.			3 (15)	B	No	
22. Union Road/Project Access	a.m.	N/A		1 (9)	A	N/A	No
	p.m.			1 (9)	A		
23. Woodward Avenue/Project Access	a.m.	N/A		1 (9)	A	N/A	No
	p.m.			1 (9)	A		
24. Atherton Drive/Project Access	a.m.	N/A		5 (9)	A	N/A	No
	p.m.			6 (9)	A		
25. Atherton Drive/Project Access	a.m.	N/A		4 (9)	A	N/A	No
	p.m.			6 (10)	B		
26. Atherton Drive/Project Access[2]	a.m.	N/A		29	C	N/A	No
	p.m.			37	D		

Notes:
[1] These intersections were signalized after the project's Notice of Preparation (NOP).
[2] These intersections would be signalized as part of the proposed project.
Bold highlighting denotes intersections with unacceptable operations (LOS E or F) or that meet peak-hour volume warrants.
Source: Compiled by Fehr & Peers in 2008

Table 4.11-15
Existing Plus Project Roadway Volumes & Levels of Service

Roadway Segment	Lanes	Existing No Project		Existing Plus Project		Impact?
		Volume[1]	LOS[2]	Volume[1]	LOS[2]	
1. Atherton Drive, between Airport Way and Union Road	Cumulative Conditions Only					
2. Atherton Drive, between Union Road and Main Street	Cumulative Conditions Only					
3. Airport Way, between Yosemite Avenue and Daniels Street	2	9,800	C	10,500	C	No
4. Airport Way, between Daniels Street and SR 120	2	11,400	C	12,300	D	No
5. Airport Way, between SR 120 and Atherton Drive	2	6,400	C	6,400	C	No
6. Airport Way, between Atherton Drive and Woodward Avenue	2	3,800	C	4,200	C	No
7. Airport Way, between Woodward Avenue and Peach/ McKinley Avenue	2	2,700	C	2,700	C	No
8. Union Road, between Yosemite Avenue and Wawona Street	4	13,200	C	17,000	C	No
9. Union Road, between Daniels Street and SR 120	2	14,600	D	**21,100**	**F**	**Yes**
10. Union Road, between SR 120 and Atherton Drive	2 to 4[3]	4,800	C	22,800	C	No
11. Union Road, between Atherton Drive and Woodward Avenue	2 to 4[3]	4,200	C	6,500	C	No
12. Union Road, between Woodward Avenue and Peach Avenue	2	3,300	C	3,700	C	No
13. Main Street, between Mission Ridge Drive and SR 120	4	14,200	C	15,800	C	No
14. Main Street, between SR 120 and Atherton Drive	2	6,600	C	6,600	C	No
15. Main Street, between Atherton Drive and Woodward Avenue	2	6,600	C	6,600	C	No
16. Main Street, between Woodward Avenue and Sedan Avenue	2	4,500	C	4,500	C	No
17. Woodward Avenue, between McKinley Avenue and Airport Way	2	1,500	C	1,700	C	No
18. Woodward Avenue, between Airport Way and Oleander Road	2	1,100	C	1,700	C	No
19. Woodward Avenue, between Oleander Road and Union Road	2	1,200	C	1,900	C	No
20. Woodward Avenue, between Union Road and Tinnin Road	2	2,600	C	3,700	C	No
21. Woodward Avenue, between Tinnin Road and Main Street	2	2,700	C	3,300	C	No
22. Woodward Avenue, between Main Street and Van Ryn Avenue	4	4,300	C	4,900	C	No

Notes:
[1] Average daily traffic
[2] LOS = Level of service.
[3] As part of the proposed project, these roadway segments would be widened to four lanes.
Source: Compiled by Fehr & Peers in 2008.

Table 4.11-16
Existing Plus Project SR 120 and SR 99 Mainline Levels of Service

Travel Direction	Segment	Peak Hour	Existing		Plus Project		Significant Impact
			Density	LOS	Density	LOS	
SR 120 eastbound	I-5 to Yosemite Avenue	a.m.	16.5	B	16.8	B	No
		p.m.	28.7	D	29.5	D	No
	Yosemite Avenue to Airport Way	a.m.	16.7	B	17.0	B	No
		p.m.	28.4	D	29.1	D	No
	Airport Way to Union Road	a.m.	17.4	B	17.8	B	No
		p.m.	26.3	D	27.0	D	No
	Union Road to Main Street	a.m.	18.4	C	18.8	C	No
		p.m.	24.0	C	24.6	C	No
	Main Street to SR 99	a.m.	17.4	B	17.7	B	No
		p.m.	20.9	C	22.2	C	No
SR 120 westbound	SR 99 to Main Street	a.m.	21.4	C	21.8	C	No
		p.m.	20.0	C	21.1	C	No
	Main Street to Union Road	a.m.	23.3	C	23.9	C	No
		p.m.	21.5	C	23.3	C	No
	Union Road to Airport Way	a.m.	24.4	C	24.7	C	No
		p.m.	19.8	C	20.1	C	No
	Airport Way to Yosemite Avenue	a.m.	26.3	D	26.5	D	No
		p.m.	19.2	C	19.4	C	No
	Yosemite Avenue to I-5	a.m.	26.1	D	26.3	D	No
		p.m.	19.2	C	19.3	C	No
SR 99 northbound	Jack Tone Road to Austin Road	a.m.	28.3	D	28.5	D	No
		p.m.	28.5	D	29.3	D	No
	Austin Road SR 120	a.m.	Leisch[1]	C	Leisch[1]	C	No
		p.m.		C		D	No
	SR 120 to Yosemite Avenue	a.m.	Leisch[1]	C	Leisch[1]	C	No
		p.m.		D		D	No
	Yosemite Avenue to Lathrop Road	a.m.	24.7	C	24.8	C	No
		p.m.	25.7	C	26.0	D	No
SR 99 southbound	Lathrop Road to Yosemite Avenue	a.m.	24.7	C	24.8	C	No
		p.m.	25.5	C	25.7	C	No
	Yosemite Avenue to SR 120	a.m.	Leisch[1]	D	Leisch[1]	D	No
		p.m.		D		D	No
	SR 120 to Austin Road	a.m.	25.2	C	25.3	C	No
		p.m.	27.2	D	27.8	D	No
	Austin Road to Jack Tone Road	a.m.	26.1	D	26.3	D	No
		p.m.	29.2	D	30.0	D	No

Notes:
[1] Weaving sections analyzed using the Leisch Method do not have a resulting density.
Source: Compiled by Fehr & Peers in 2008

Table 4.11-17
Existing Plus Project SR 120 and SR 99 Ramp Junction Levels of Service

Travel Direction	Ramp	Merge/ Diverge	Peak Hour	Existing		Plus Project		Significant Impact
				Density[1]	LOS[2]	Density[1]	LOS[2]	
SR 120 eastbound	Airport Way	Diverge (Off-ramp)	a.m.	21.6	C	21.9	C	No
			p.m.	34.1	D	34.7	D	No
		Merge (On-ramp)	a.m.	19.8	B	20.2	C	No
			p.m.	28.6	D	29.3	D	No
	Union Road	Diverge (Off-ramp)	a.m.	22.4	C	22.8	C	No
			p.m.	32.1	D	32.8	D	No
		Merge (On-ramp)	a.m.	20.8	C	21.2	C	No
			p.m.	26.5	C	26.8	D	No
SR 120 westbound	Union Road	Diverge (Off-ramp)	a.m.	27.0	C	29.6	D	No
			p.m.	26.9	C	28.9	D	No
		Merge (On-ramp)	a.m.	26.8	C	27.0	C	No
			p.m.	21.6	C	22.4	C	No
	Airport Way	Diverge (Off-ramp)	a.m.	30.2	D	30.4	D	No
			p.m.	25.1	C	25.4	C	No
		Merge (On-ramp)	a.m.	28.5	D	28.7	D	No
			p.m.	21.6	C	21.8	C	No

Note:
[1] Measured in vehicles per mile per lane
[2] LOS = Level of service
Source: Compiled by Fehr & Peers in 2008

Cumulative Plus Project conditions

This section describes the results of the transportation impact analysis under cumulative plus project conditions. To develop cumulative plus project traffic forecasts, project trips from the proposed project were added to Cumulative No Project turning-movement volumes.

Intersections and Peak-Hour Signal Warrants

Intersection LOS was calculated with project-generated traffic to evaluate the intersection operations and identify potential project impacts. The technical appendices contain the corresponding calculation sheets (Appendix H1).

A peak-hour signal warrant analysis was also conducted at the intersections that did not meet signal warrant criteria under Cumulative No Project Conditions (intersections that met the signal warrant under No Project Conditions would also meet the warrant under Plus Project Conditions).

Exhibits 4.11-13a and 4.11-13b show the peak hour turning movement volumes and lane configurations under cumulative plus project conditions. Table 4.11-18 shows the results of the intersection LOS calculations, which indicates that 19 of the 23 study intersections are expected to operate at unacceptable conditions, as listed below:

- Main Street and SR 120 westbound ramps (a.m. and p.m. peak hour)
- Main Street and SR 120 eastbound ramps (a.m. and p.m. peak hour)
- Main Street and Atherton Drive (a.m. and p.m. peak hour)
- Main Street and Woodward Avenue (a.m. and p.m. peak hour)
- Union Road and SR 120 westbound ramps (a.m. and p.m. peak hour)
- Union Road and SR 120 eastbound ramps (a.m. and p.m. peak hour)
- Union Road and Atherton Drive (a.m. and p.m. peak hour)

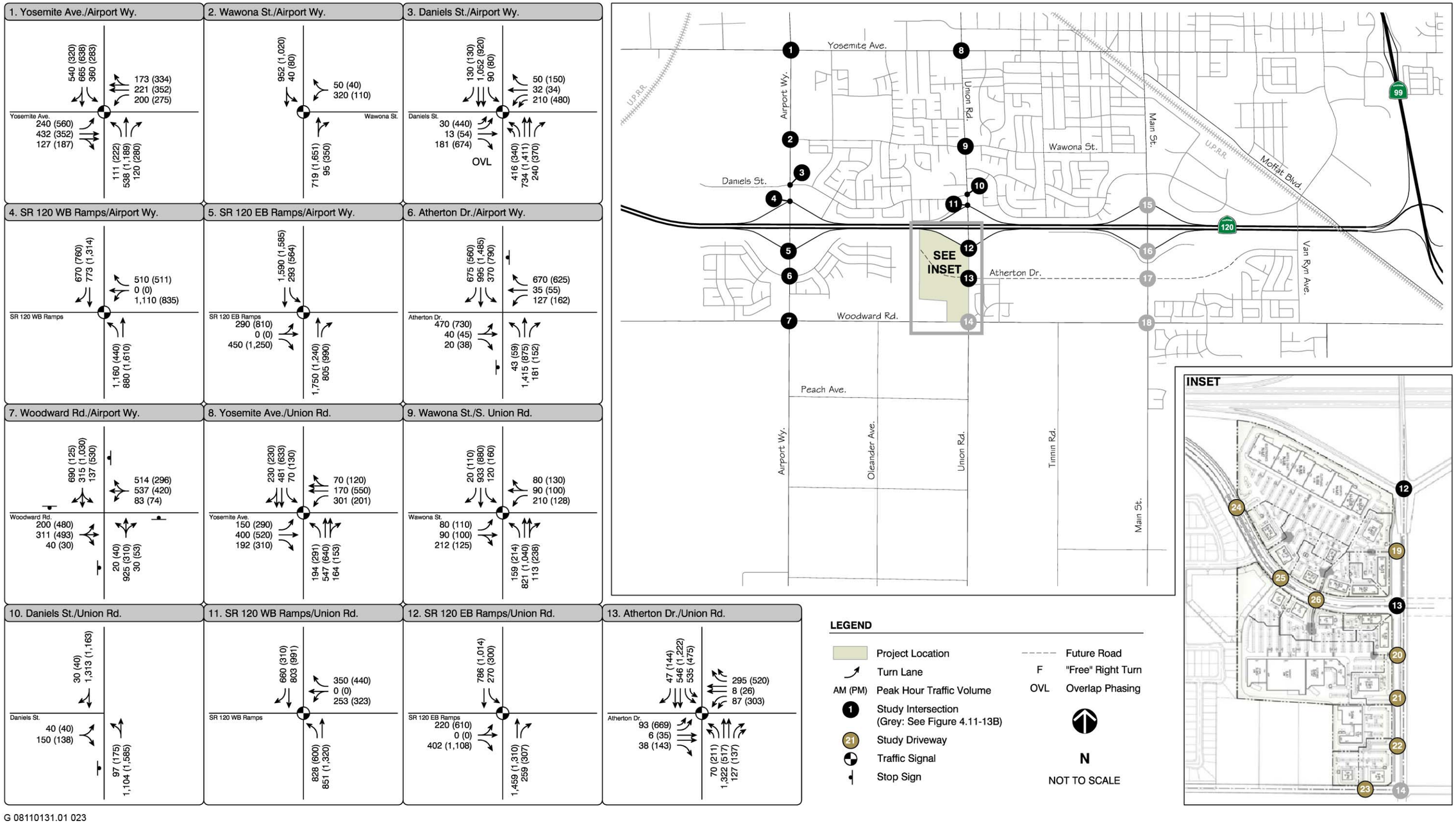
- Union Road and Woodward Avenue (a.m. and p.m. peak hour)
- Airport Way and Daniels Street (a.m. and p.m. peak hour)
- Airport Way and SR 120 westbound ramps (a.m. and p.m. peak hour)
- Airport Way and SR 120 eastbound ramps (a.m. and p.m. peak hour)
- Airport Way and Atherton Drive (a.m. and p.m. peak hour)
- Airport Way and Woodward Avenue (a.m. and p.m. peak hour)
- Woodward Avenue and Moffat Boulevard (p.m. peak hour)
- Moffat Boulevard and SR 99 southbound off-ramp (a.m. and p.m. peak hour)
- Austin Road and Moffat Boulevard/SR 99 southbound on-ramp (a.m. and p.m. peak hour)
- Austin Road and SR 99 northbound ramps (a.m. and p.m. peak hour)
- Main Street and Yosemite Avenue (p.m. peak hour)
- Woodward Avenue and Van Ryn Avenue (p.m. peak hour)

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for cumulative plus project conditions. Results are shown in Table 4.11-18.

Roadway Segments

Exhibit 4.11-14 and Table 4.11-19 summarize the results of the roadway segment LOS analysis for cumulative plus project conditions. The following roadway segments are expected to operate at an unacceptable LOS:

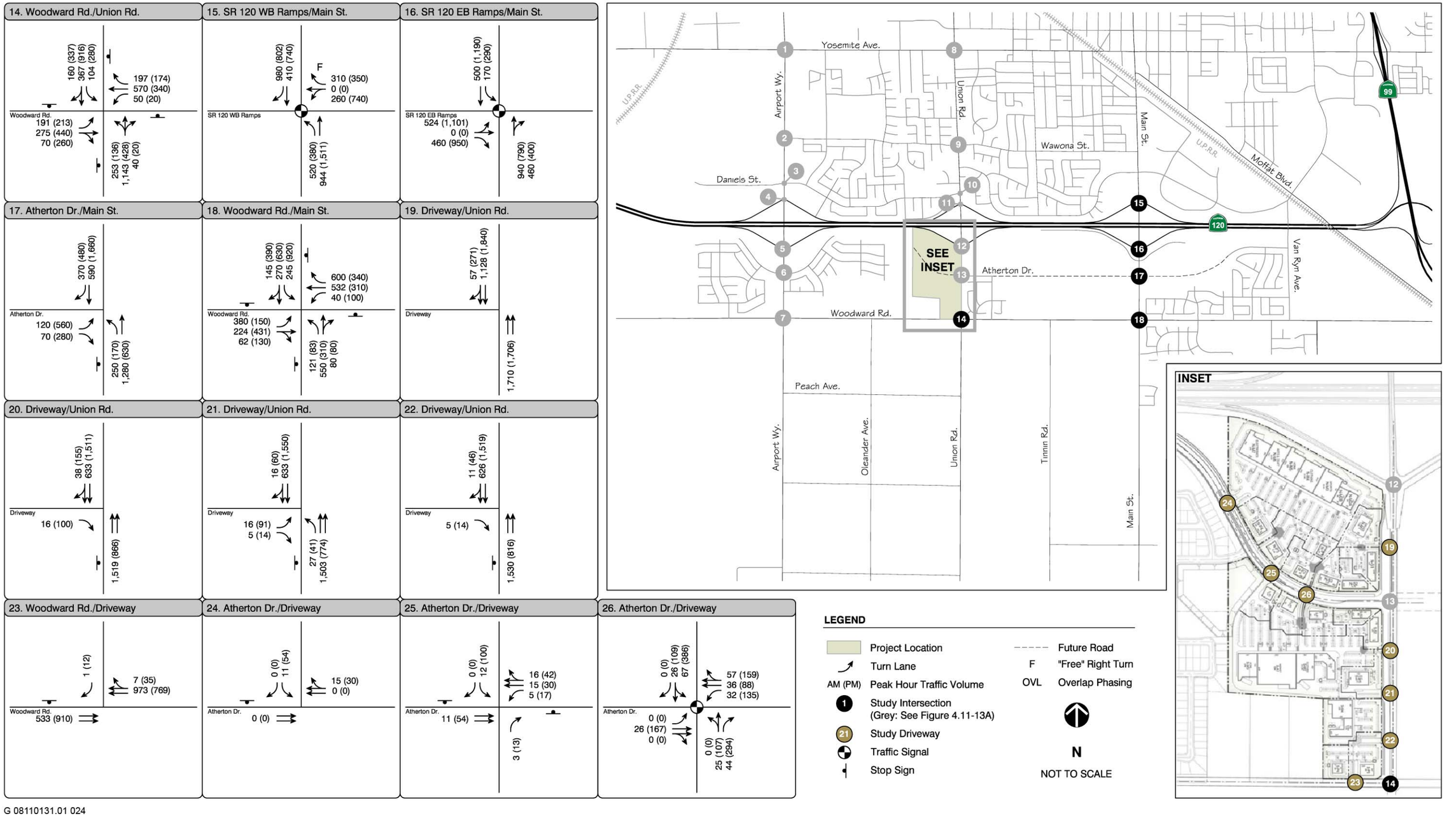
- Atherton Drive between Airport Way and Union Road
- Atherton Drive between Union Road and Main Street
- Airport Way between Yosemite Avenue and Daniels Street
- Airport Way between Daniels Street and SR 120
- Airport Way between SR 120 and Atherton Drive
- Airport Way between Atherton Drive and Woodard Avenue
- Airport Way between Woodward Avenue and Peach/McKinley Avenue
- Union Road between Daniels Street and SR 120
- Union Road between SR 120 and Atherton Drive
- Union Road between Woodward Avenue and Peach Avenue
- Main Street between SR 120 and Atherton Drive
- Main Street between Atherton Drive and Woodard Avenue
- Woodward Avenue between McKinley Avenue and Airport Way
- Woodward Avenue between Airport Way and Oleander Road
- Woodward Avenue between Oleander Road and Union Road
- Woodward Avenue between Tinnin Road and Main Street



Source: Fehr & Peers 2008

Peak-Hour Traffic Volumes and Lane Configurations –Cumulative Plus Project Conditions

Exhibit 4.11-13a



Source: Fehr & Peers 2008

Peak-Hour Traffic Volumes and Lane Configurations – Cumulative Plus Project Conditions

Exhibit 4.11-13b

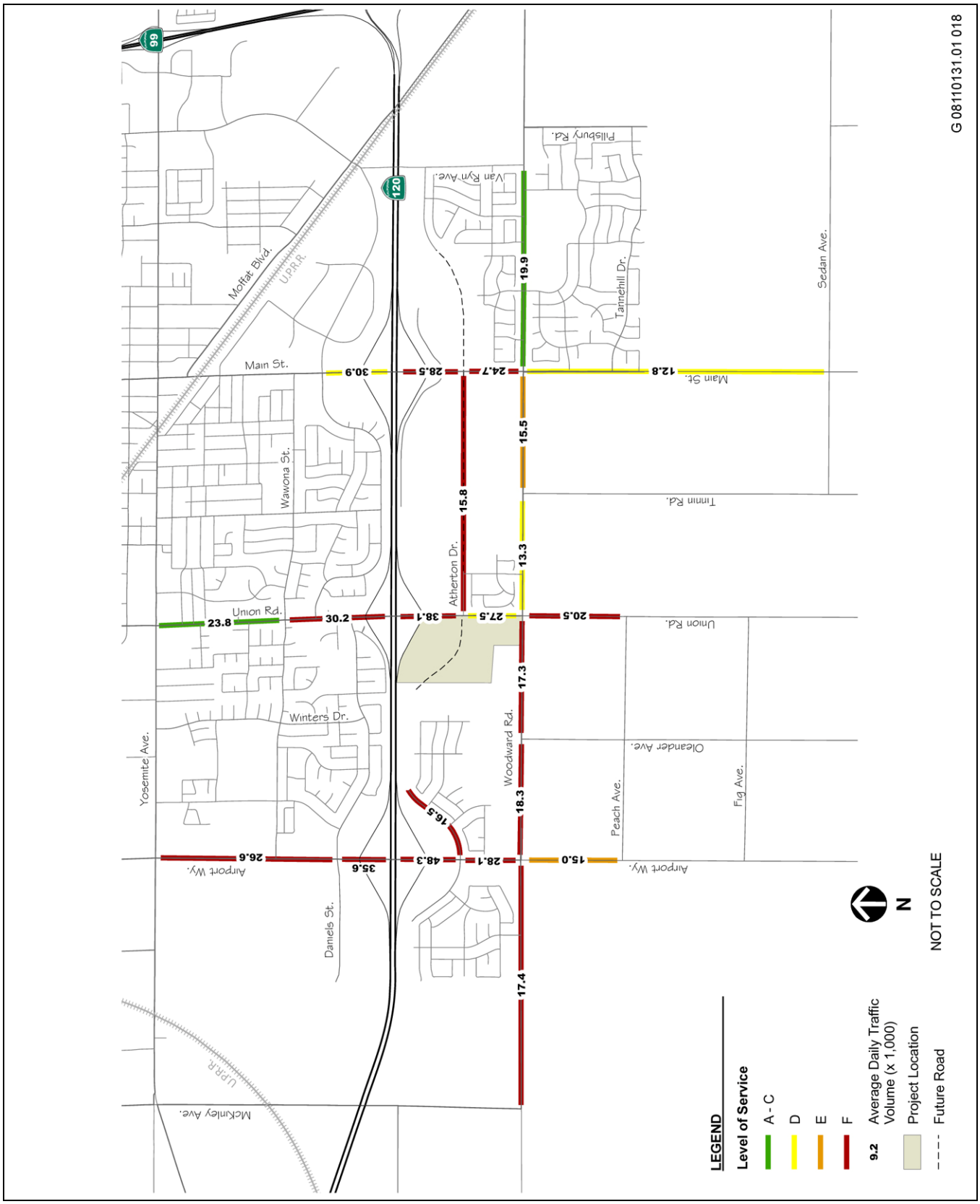
Table 4.11-18
Cumulative Plus Project Intersection Levels of Service and Signal Warrants

Intersection	Peak Hour	No Project		Plus Project		Meets Warrant	Significant Impact
		Delay	LOS	Delay	LOS		
1. Airport Way/Yosemite Avenue	a.m. p.m.	**>100**[1] **>100**	**F** **F**	**>100** **>100**	**F** **F**	NA	**Yes**
2. Airport Way/Wawona Street	a.m. p.m.	**>100 (>100)** **>100 (>100)**	**F** **F**	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**	**Yes**
3. Airport Way/Daniels Street	a.m. p.m.	31 **100**	C **F**	31 **>100**	C **F**	NA	No
4. Airport Way/SR 120 WB[2]	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	NA	**Yes**
5. Airport Way/SR 120 EB[2]	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	NA	**Yes**
6. Airport Way/Atherton Drive	a.m. p.m.	**>100 (>100)** **>100 (>100)**	**F** **F**	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**	**Yes**
7. Airport Way/Woodward Avenue	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	**Yes** **Yes**	**Yes**
8. Union Road/Yosemite Avenue	a.m. p.m.	**88** **68**	**F** **E**	**91** **74**	**F** **E**	NA	**Yes**
9. Union Road/Wawona Street	a.m. p.m.	**99** **73**	**F** **E**	**>100** **>100**	**F** **F**	NA	**Yes**
10. Union Road/Daniels Street	a.m. p.m.	**>100 (>100)** **>100 (>100)**	**F** **F**	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**	**Yes**
11. Union Road/SR 120 WB	a.m. p.m.	**>100** 44	**F** D	**>100** **>100**	**F** **F**	NA	**Yes**
12. Union Road/SR 120 EB	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	NA	**Yes**
13. Union Road/Atherton Drive[3]	a.m. p.m.	21 23	C C	32 40	C D	NA	No
14. Union Road/Woodward Avenue	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	**Yes** **Yes**	**Yes**
15. Main Street/SR 120 WB	a.m. p.m.	50 **>100**	D **F**	54 **>100**	D **F**	NA	**Yes**
16. Main Street/SR 120 EB	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	NA	**Yes**
17. Main Street/Atherton Drive	a.m. p.m.	**>100 (>100)** **>100 (>100)**	**F** **F**	**>100 (>100)** **>100 (>100)**	**F** **F**	**Yes** **Yes**	No
18. Main Street/Woodward Avenue	a.m. p.m.	**>100** **>100**	**F** **F**	**>100** **>100**	**F** **F**	**Yes** **Yes**	**Yes**

Table 4.11-18
Cumulative Plus Project Intersection Levels of Service and Signal Warrants

Intersection	Peak Hour	No Project		Plus Project		Meets Warrant	Significant Impact
		Delay	LOS	Delay	LOS		
19. Union Road/Project Access	a.m. p.m.	N/A		1 (1) 1 (1)	A A	No No	No
20. Union Road/Project Access	a.m. p.m.	N/A		1 (10) 1 (16)	B C	N/A N/A	No
21. Union Road/Project Access	a.m. p.m.	N/A		**1 (46)** **>100 (>100)**	**E** **F**	**Yes** **Yes**	**Yes**
22. Union Road/Project Access	a.m. p.m.	N/A		1 (10) 1 (13)	B B	N/A N/A	No
23. Woodward Avenue/Project Access	a.m. p.m.	N/A		1 (12) 1 (11)	B B	N/A N/A	No
24. Atherton Drive/Project Access	a.m. p.m.	N/A		4 (9) 6 (9)	A A	N/A N/A	No
25. Atherton Drive/Project Access	a.m. p.m.	N/A		3 (9) 5 (10)	A A	N/A N/A	No
26. Atherton Drive/Project Access[3]	a.m. p.m.	N/A		25 33	C C	N/A N/A	No

Notes:
1 Delays greater than 100 seconds were reported as ">100" as HCM methodology is not accurate in extremely congested conditions. For actual HCM delay, see Appendix H1.
2 These intersections were signalized after the project's Notice of Preparation (NOP).
3 These intersections would be signalized as part of the proposed project.
Bold highlighting denotes intersections with unacceptable operations (LOS E or F) that also meet peak-hour volume warrants.
Source: Compiled by Fehr & Peers in 2008



Source: Fehr & Peers 2008

Average Daily Traffic Volumes and Roadway Level of Service – Cumulative Plus Project Conditions

Exhibit 4.11-14

Table 4.11-19
Cumulative Plus Project Roadway Volumes & Levels of Service

Roadway Segment	Lanes	Cumulative No Project		Cumulative Plus Project		Impact?
		Volume[1]	LOS[2]	Volume[1]	LOS[2]	
1. Atherton Drive, between Airport Way and Union Road	2	**16,200**	**F**	**16,500**	**F**	No
2. Atherton Drive, between Union Road and Main Street	2	**14,700**	**E**	**15,800**	**F**	**Yes**
3. Airport Way, between Yosemite Avenue and Daniels Street	2	**25,900**	**F**	**26,600**	**F**	**Yes**
4. Airport Way, between Daniels Street and SR 120	2	**34,900**	**F**	**35,600**	**F**	**Yes**
5. Airport Way, between SR 120 and Atherton Drive	2	**48,300**	**F**	**48,300**	**F**	No
6. Airport Way, between Atherton Drive and Woodward Avenue	2	**27,500**	**F**	**28,100**	**F**	**Yes**
7. Airport Way, between Woodward Avenue and Peach/ McKinley Avenue	2	14,600	D	**15,000**	**E**	**Yes**
8. Union Road, between Yosemite Avenue and Wawona Street	4	21,200	C	23,800	C	No
9. Union Road, between Daniels Street and SR 120	2	**26,100**	**F**	**30,200**	**F**	**Yes**
10. Union Road, between SR 120 and Atherton Drive	4	26,000	D	**38,100**	**F**	**Yes**
11. Union Road, between Atherton Drive and Woodward Avenue	4	20,000	C	27,500	D	No
12. Union Road, between Woodward Avenue and Peach Avenue	2	**17,700**	**F**	**20,500**	**F**	**Yes**
13. Main Street, between Mission Ridge Drive and SR 120	4	29,700	D	30,900	D	No
14. Main Street, between SR 120 and Atherton Drive	2	**28,500**	**F**	**28,500**	**F**	No
15. Main Street, between Atherton Drive and Woodward Avenue	2	**24,700**	**F**	**24,700**	**F**	No
16. Main Street, between Woodward Avenue and Sedan Avenue	2	11,900	C	12,800	D	No
17. Woodward Avenue, between McKinley Avenue and Airport Way	2	**16,500**	**F**	**17,400**	**F**	**Yes**
18. Woodward Avenue, between Airport Way and Oleander Road	2	**16,600**	**F**	**18,300**	**F**	**Yes**
19. Woodward Avenue, between Oleander Road and Union Road	2	**15,200**	**E**	**17,300**	**F**	**Yes**
20. Woodward Avenue, between Union Road and Tinnin Road	2	11,600	C	13,300	D	No
21. Woodward Avenue, between Tinnin Road and Main Street	2	14,100	D	**15,500**	**E**	**Yes**
22. Woodward Avenue, between Main Street and Van Ryn Avenue	4	19,300	C	19,900	C	No

Notes:
[1] Average daily traffic
[2] LOS = Level of service
Source: Compiled by Fehr & Peers in 2008

Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

Freeway mainline and ramp junction LOS analyses were conducted with the addition of project-generated traffic and the results are summarized in Tables 4.11-20 and 4.11-21, respectively. The technical appendices contain the corresponding calculation sheets (Appendix H1).

Based on the results shown in Table 4.11-20, the following freeway mainline segments are expected to operate at LOS E or F under cumulative plus project conditions:

- Eastbound and westbound SR 120 between I-5 and Yosemite Avenue
- Eastbound and westbound SR 120 between Yosemite Avenue and Airport way
- Eastbound and westbound SR 120 between Airport Way and Union Road
- Eastbound and westbound SR 120 between Union Road and Main Street
- Northbound and southbound SR 99 between SR 120 and Yosemite Avenue
- Northbound and southbound SR 99 between Yosemite Avenue and Lathrop Road
- Northbound and southbound SR 99 between 120 and Austin Road
- Northbound and southbound SR 99 between Austin Road and Jack Tone Road

Based on the results shown in Table 4.11-21, the all study freeway ramp junctions are expected to operate at LOS E or F under cumulative plus project conditions.

Table 4.11-20
Cumulative Plus Project SR 120 and SR 99 Mainline Levels of Service

Travel Direction	Segment	Peak Hour	Cumulative		Cumulative + Project		Significant Impact
			Density[1]	LOS[2]	Density[1]	LOS[2]	
SR 120 eastbound	I-5 to Yosemite Avenue	a.m.	27.2	D	27.4	D	**Yes**
		p.m.	--	**F**	--	**F**	
	Yosemite Avenue to Airport Way	a.m.	20.6	C	20.8	C	**Yes**
		p.m.	--	**F**	--	**F**	
	Airport Way to Union Road	a.m.	22.6	C	22.9	C	**Yes**
		p.m.	--	**F**	--	**F**	
	Union Road to Main Street	a.m.	22.2	C	22.3	C	**Yes**
		p.m.	--	**F**	--	**F**	
	Main Street to SR 99	a.m.	20.2	C	20.2	C	No
		p.m.	31.5	D	32.0	D	
SR 120 westbound	SR 99 to Main Street	a.m.	30.5	D	30.6	D	No
		p.m.	25.5	C	25.9	C	
	Main Street to Union Road	a.m.	**40.9**	**E**	**41.4**	**E**	**Yes**
		p.m.	25.8	C	26.5	D	
	Union Road to Airport Way	a.m.	--	**F**	--	**F**	**Yes**
		p.m.	26.7	D	27.5	D	
	Airport Way to Yosemite Avenue	a.m.	--	**F**	--	**F**	**Yes**
		p.m.	25.9	C	26.5	D	
	Yosemite Avenue to I-5	a.m.	--	**F**	--	**F**	**Yes**
		p.m.	27.8	D	28.4	D	

Table 4.11-20
Cumulative Plus Project SR 120 and SR 99 Mainline Levels of Service

Travel Direction	Segment	Peak Hour	Cumulative		Cumulative + Project		Significant Impact
			Density[1]	LOS[2]	Density[1]	LOS[2]	
SR 99 northbound	Jack Tone Road to Austin Road	a.m.	--	**F**	--	**F**	**Yes**
		p.m.	**43.2**	**E**	**43.5**	**E**	
	Austin Road SR 120	a.m.	Leisch	**E**	Leisch	**E**	**Yes**
		p.m.		**E**		**E**	
	SR 120 to Yosemite Avenue	a.m.	Leisch	D	Leisch	D	**Yes**
		p.m.		**F**		**F**	
	Yosemite Avenue to Lathrop Road	a.m.	--	**F**	--	**F**	**Yes**
		p.m.	**43.4**	**E**	**43.8**	**E**	
SR 99 southbound	Lathrop Road to Yosemite Avenue	a.m.	--	**F**	--	**F**	**Yes**
		p.m.	--	**F**	--	**F**	
	Yosemite Avenue to SR 120	a.m.	Leisch	**F**	Leisch	**F**	**Yes**
		p.m.		**F**		**F**	
	SR 120 to Austin Road	a.m.	**41.4**	**E**	**41.6**	**E**	**Yes**
		p.m.	--	**F**	--	**F**	
	Austin Road to Jack Tone Road	a.m.	**39.9**	**E**	**40.0**	**E**	**Yes**
		p.m.	--	**F**	--	**F**	

Notes:
[1] a.m. = morning peak hour, p.m. = evening peak hour.
[2] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Weaving sections analyzed using the Leisch Method do not have a resulting density.
Source: Compiled by Fehr & Peers in 2008

Table 4.11-21
Cumulative Plus Project SR 120 Ramp Junction Levels of Service

Travel Direction	Ramp	Merge/ Diverge	Peak Hour	Cumulative		Cumulative + Project		Significant Impact
				Density[1]	LOS[2]	Density[1]	LOS[2]	
SR 120 eastbound	Airport Way	Diverge (Off-ramp)	a.m.	27.3	C	27.5	C	**Yes**
			p.m.	**59.2**	**F**	**61.9**	**F**	
		Merge (On-ramp)	a.m.	25.9	C	26.1	C	**Yes**
			p.m.	**47.6**	**F**	**50.2**	**F**	
	Union Road	Diverge (Off-ramp)	a.m.	28.7	D	29.0	D	**Yes**
			p.m.	**54.0**	**F**	**56.9**	**F**	
		Merge (On-ramp)	a.m.	23.8	C	24.0	C	**Yes**
			p.m.	**38.5**	**F**	**39.2**	**F**	
SR 120 westbound	Union Road	Diverge (Off-ramp)	a.m.	**38.0**	**E**	**38.3**	**E**	**Yes**
			p.m.	31.2	D	31.9	D	
		Merge (On-ramp)	a.m.	**42.6**	**F**	**42.8**	**F**	**Yes**
			p.m.	28.2	D	29.4	D	
	Airport Way	Diverge (Off-ramp)	a.m.	**46.8**	**F**	**47.0**	**F**	**Yes**
			p.m.	33.3	D	33.9	D	
		Merge (On-ramp)	a.m.	**44.8**	**F**	**44.9**	**F**	**Yes**
			p.m.	29.0	D	29.5	D	

Note:
[1] Measured in vehicles per mile per lane
[2] LOS = Level of service
Source: Compiled by Fehr & Peers in 2008

IMPACT ANALYSIS

This section describes significant impacts to the transportation system that would be caused with implementation of the proposed project. A mitigation measure is proposed to reduce the significance of each identified impact.

Upon review of the site plan from which assumptions for traffic analysis were based, the City of Manteca and Fehr & Peers noted several site plan modifications that the City would place as conditions of project approval. Because these modifications would become conditions of approval, they were assumed in the analysis; therefore, no mitigation measures are recommended for the following changes:

- The northern most project access on Union Road (study intersection 19) would be restricted to right-in only to eliminate the weave effect from vehicles using this right-out and then making a southbound to northbound U-turn at the Union Road/Atherton Road intersection.
- At the Union Road/Atherton Road intersection, the southbound approach would include only one right-turn lane.
- The project access to the southern site on Union Road (study intersection 21) would not be signalized and would not have any crosswalks across Union Road. This driveway would permit left-turn ingress and right-turn movements.
- The entrance to parking lot three that connects to the entrance at study intersection 21 should be closed.
- Any right-in/right-out driveways should include a raised triangular island to prohibit left turns unless left turns are prohibited by a raised center median.

Existing Plus Project Impacts and Mitigation

This section presents the significant project-related impacts under existing conditions. Exhibits 4.11-15a and 4.11-15b illustrate the feasible mitigation measures identified below.

IMPACT 4.11-1 **Increases in Project-Related Traffic Volumes on Local Roadway Segments.** *The traffic analysis concluded that the addition of project-generated traffic to local roadway segments would not degrade currently acceptable LOS conditions to unacceptable conditions based on City of Manteca significance thresholds. This impact would be* ***less than significant****.*

All roadway segments with the exception of Union Road between Wawona Street and SR-120, would operate acceptably under existing plus project conditions. Without project traffic, Union Road between Wawona Street and SR-120 carries 14,600 vehicles per day (the absolute maximum daily volume at LOS D). The addition of project traffic would degrade operations on this roadway segment from LOS D to LOS E.

At the release of the Notice of Preparation (NOP) for the project (September 2008), this roadway segment had two lanes. Consistent with the requirements of CEQA, the traffic analysis was modeled based on the site conditions present at the time the NOP was released (i.e., two lanes). However, following the release of the NOP, this segment was widened to four lanes. With the widening in place, under existing plus project operations this segment would operate at LOS C. Therefore, the project's impact to this roadway segment would be **less than significant** and no mitigation is required.

IMPACT 4.11-2 **Increases in Peak Hour Traffic Volumes on Regional Roadways Resulting in Unacceptable Levels of Service.** *The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service at two intersections: Union Road/Daniels Street and Union Road/eastbound SR 120 ramps. Because the project would result in an unacceptable operating condition based on applicable standards, this impact would be* ***significant****.*

As shown in Table 4.11-14 on page 4.11-42, significant impacts were identified at the following intersections:

- Airport Way/westbound SR 120 Ramps;
- Airport Way/eastbound SR 120 Ramps;
- Union Road/Daniels Street;
- Union Road/westbound SR 120 Ramps; and
- Union Road/eastbound SR 120 Ramps.

With implementation of the project, traffic generated by the proposed project would exacerbate traffic operations these intersections, which operate at an unacceptable LOS under "no project" conditions.

The intersection LOS analysis summarized in Table 4.11-14 was based on the conditions present when the NOP was released for the project (September 2008). However, since the time the NOP was released, signal improvements at Airport Way/westbound SR 120, Airport Way/eastbound SR 120, Union Road/westbound SR 120, and Union Road/eastbound SR 120 ramps have been implemented. With these signal improvements in place, the intersections above are generally expected to operate acceptably under Existing Plus Project conditions, with the following exceptions:

- Union Road/Daniels Street; and
- Union Road/eastbound SR 120 Ramps

The Union Road/Daniels Street intersection continues to operate at an unacceptable level because no improvements have been constructed at this intersection. The Union Road/eastbound SR 120 Ramps intersection operates unacceptably because project trips would exceed available capacity at the northbound approach to the intersection. Because operations would degrade to an unacceptable LOS with implementation of the project, impacts at the intersections of Union Road/Daniels Street and Union Road/eastbound SR 120 ramps would be **significant**.

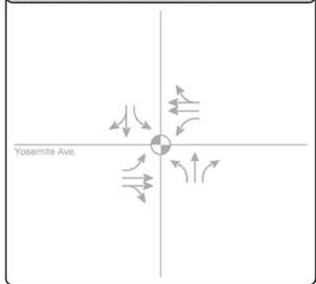
IMPACT 4.11-3 Project and Cumulative Bicycle Circulation Impacts. *While the proposed project would increase demand for bicycle travel; bicycle lanes are proposed along project frontages and would connect to nearby bicycle facilities. Therefore, this impact would be less than significant.*

Currently a Class II bicycle path is provided on the east side of Union Road between Atherton Drive and Woodward Avenue. The City of Manteca Bicycle Master Plan identifies that Class I bicycle paths should be provided on Atherton Drive between Airport Way and Union Road. The Bicycle Master Plan also identifies that Class II bicycle lanes should be provided on Union Road between Daniels Street and Woodward Avenue. Bicycle lanes and paths would be provided along project frontages and would connect to nearby bicycle facilities. Because the project would increase demand for bicycle travel and the appropriate bicycle facilities would be provided, this would be a less than significant impact.

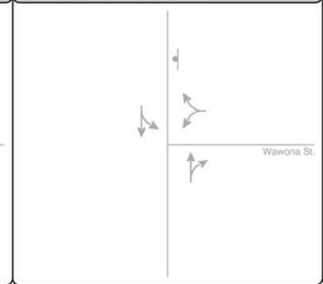
IMPACT 4.11-4 Project and Cumulative Pedestrian Circulation Impacts. *The new retail land uses associated with the proposed project would increase demand for pedestrian travel. The project would provide a network of internal pedestrian sidewalks and internal circulation and would also construct sidewalks along its frontage on Union Road, Atherton Drive, and Woodward Avenue. Therefore, this impact would be less than significant.*

The new retail land uses associated with the proposed project would increase demand for pedestrian travel. The project site plan shows that sidewalks would be constructed within the site and along the site's periphery. These sidewalks would be consistent with City circulation requirements. . Because sidewalks are proposed as required by City standards the project's impact on the pedestrian system would be **less than significant**.

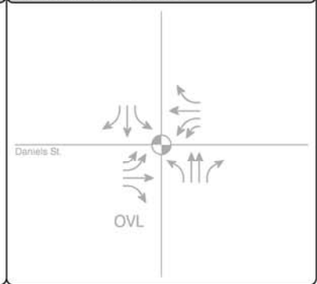
1. Yosemite Ave./Airport Wy.



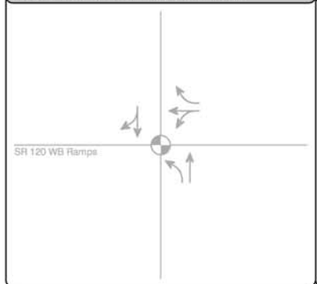
2. Wawona St./Airport Wy.



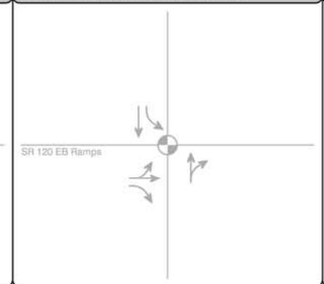
3. Daniels St./Airport Wy.



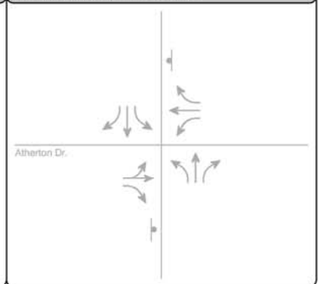
4. SR 120 WB Ramps/Airport Wy.



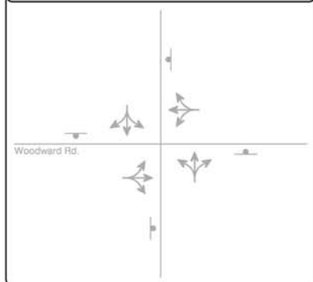
5. SR 120 EB Ramps/Airport Wy.



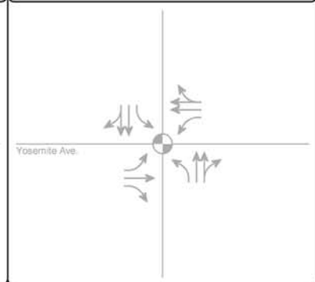
6. Atherton Dr./Airport Wy.



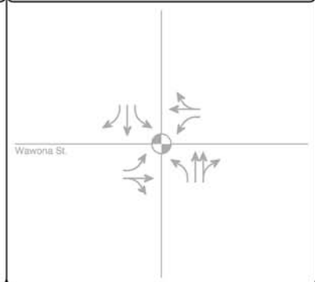
7. Woodward Rd./Airport Wy.



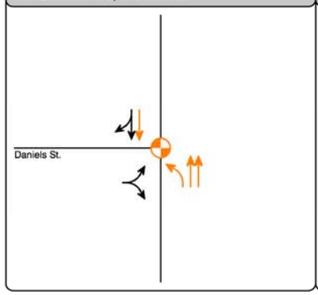
8. Yosemite Ave./Union Rd.



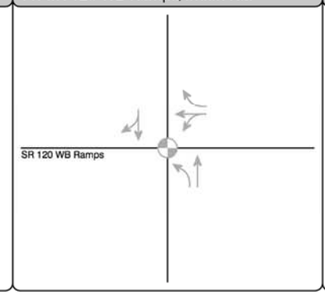
9. Wawona St./Union Rd.



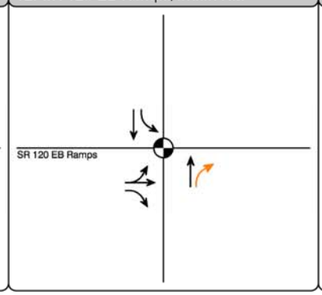
10. Daniels St./Union Rd.



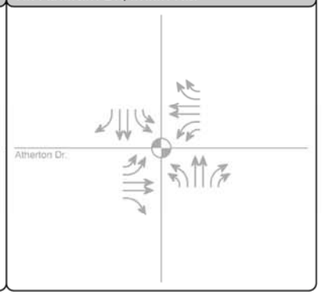
11. SR 120 WB Ramps/Union Rd.



12. SR 120 EB Ramps/Union Rd.



13. Atherton Dr./Union Rd.







LEGEND

- Intersection Mitigation
- Roadway Mitigation
- 21 Mitigated Intersection
- 1 Study Intersection (Grey: See Figure 4.11-15B)
- 21 Study Driveway
- Project Location
- Turn Lane
- Traffic Signal
- Stop Sign
- Future Road
- F "Free" Right Turn
- OVL Overlap Phasing

N

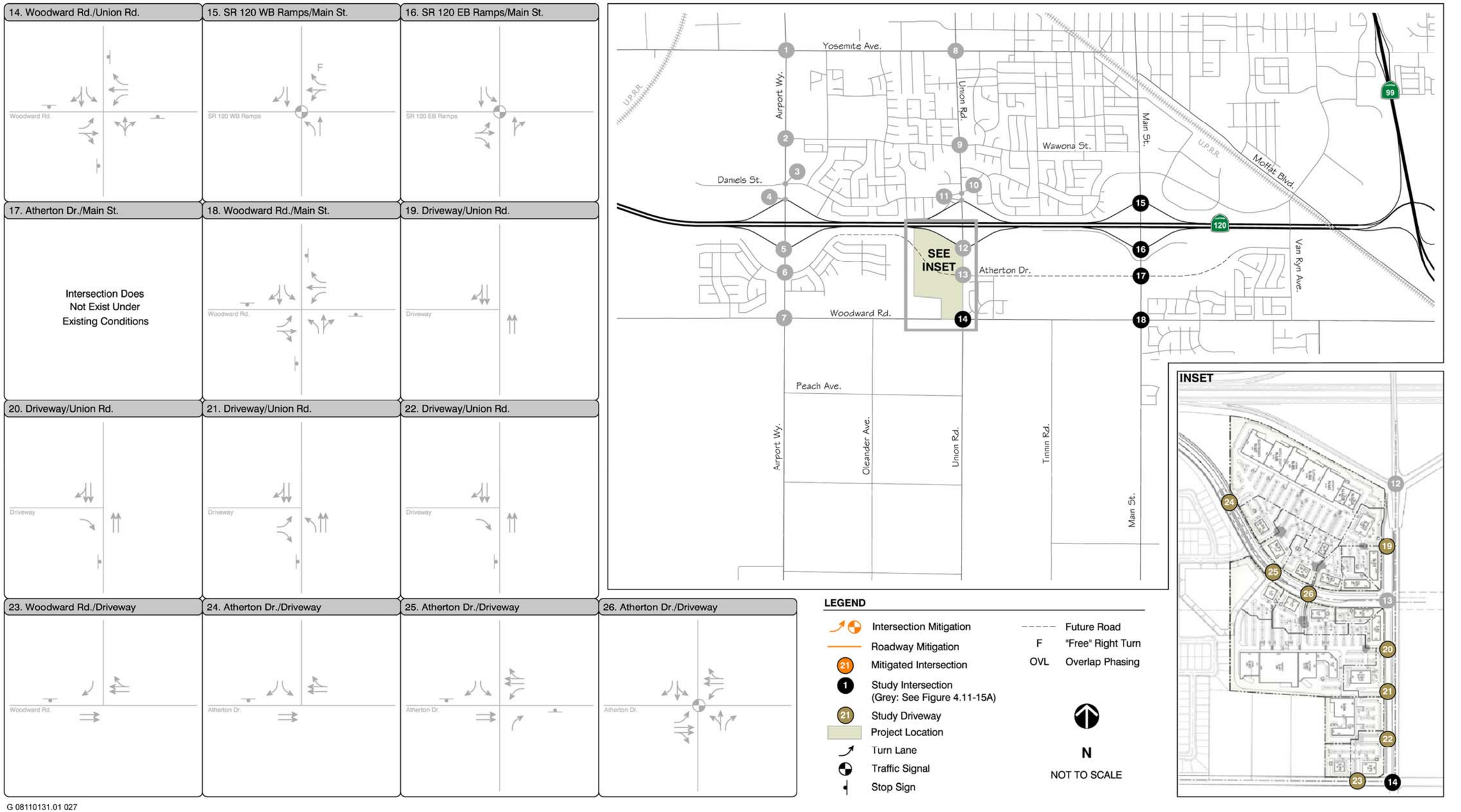
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Source: Fehr & Peers 2008

Mitigated Lane Configurations – Existing Plus Project Conditions

Exhibit 4.11-15a



Source: Fehr & Peers 2008

Mitigated Lane Configurations – Existing Plus Project Conditions **Exhibit 4.11-15b**

IMPACT 4.11-5 **Project and Cumulative Bus Transit Services.** *Implementation of the project would generate demand for public bus transportation services. Because limited bus services are currently available to serve the project area and none are proposed as part of the project, this impact would be* ***significant****.*

Based on the characteristics of retail centers near the project site, this project is anticipated to create a demand for transit above what is provided. Currently there are no local transit facilities in the vicinity of the project site. Typical weekday activities within the proposed development would create a demand for transit facilities for those who would use public transit to access jobs or other retail developments on the project site. Because the proposed project would create demand for public transit and no transit facilities would be provided, the proposed project would result in a **significant** impact on the transit facilities.

IMPACT 4.11-6 **Increases in Peak Hour Traffic Volumes on Local Roadway Segments Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015).** *Operational traffic conditions for cumulative no project conditions on 12 roadway segments in the project study area would operate at an unacceptable LOS. The project would contribute trips to these intersections and would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. This would be a* ***significant*** *impact.*

Roadway segment operations were evaluated under Cumulative No Project and Plus project during a.m. and p.m. peak hours. Traffic generated by the proposed project would degrade roadway segment operations at the following locations:

- Atherton Drive, between Union Road and Main Street
- Airport Way, between Yosemite Avenue and Daniels Street
- Airport Way, between Daniels Street and SR 120
- Airport Way, between Atherton Drive and Woodward Avenue
- Airport Way, between Woodward Avenue and Peach/ McKinley Avenue
- Union Road, between Daniels Street and SR 120
- Union Road, between SR 120 and Atherton Drive
- Union Road, between Woodward Avenue and Peach Avenue
- Woodward Avenue, between McKinley Avenue and Airport Way
- Woodward Avenue, between Airport Way and Oleander Road
- Woodward Avenue, between Oleander Road and Union Road
- Woodward Avenue, between Tinnin Road and Main Street

These 12 roadway segments are expected to operate at LOS E or F conditions under Cumulative Plus Project Conditions. All other roadway segments are expected to operate at adequate LOS. Because project trips would result in 12 roadway segments to operate at LOS E or F, this is considered a **significant** impact.

IMPACT 4.11-7 **Increases in Peak Hour Traffic Volumes on Regional Roadways Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015).** *The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service and warrant the need for improvements at 16 intersections under cumulative plus project conditions. Because the project would result in an unacceptable operating conditions based on applicable standards, this impact would be* ***significant****.*

With implementation of the project, traffic generated by the proposed project would degrade traffic operations at 16 intersections and would operate at an unacceptable LOS. These intersections include the following locations:

- Airport Way and Yosemite Avenue
- Airport Way and Wawona Street
- Airport Way and SR 120 westbound

- Airport Way and SR 120 eastbound
- Airport Way and Atherton Drive
- Airport Way and Woodward Avenue
- Union Road and Yosemite Avenue
- Union Road and Wawona Street
- Union Road and Daniels Street
- Union Road and SR 120 westbound
- Union Road and SR 120 eastbound
- Union Road and Woodward Avenue
- Main Street and SR 120 westbound
- Main Street and SR 120 eastbound
- Main Street and Woodward Avenue
- Union Road and Project Access (study intersection #21)

All other intersections would operate at an acceptable LOS. Because operations would degrade to an unacceptable LOS with implementation of the project for cumulative conditions, impacts at these 16 intersections would be significant.

IMPACT 4.11-8 **Increases in Traffic Volumes on Freeway Mainlines Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015).** *Under cumulative no project conditions, 8 freeway mainline segments would operate at an unacceptable LOS during peak hours. With implementation of the project, the project would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. This would be a* ***significant*** *impact.*

Traffic generated by the proposed project would degrade freeway mainline operations at numerous locations. Based on analysis of freeway mainline segments of SRs 120 and 99 (shown in Table 4.11-20), the proposed project would cause following freeway facilities to operate unacceptably (LOS E or F):

- Eastbound and westbound SR 120 between I-5 and Yosemite Avenue
- Eastbound and westbound SR 120 between Yosemite Avenue and Airport way
- Eastbound and westbound SR 120 between Airport Way and Union Road
- Eastbound and westbound SR 120 between Union Road and Main Street
- Northbound and southbound SR 99 between SR 120 and Yosemite Avenue
- Northbound and southbound SR 99 between Yosemite Avenue and Lathrop Road
- Northbound and southbound SR 99 between 120 and Austin Road
- Northbound and southbound SR 99 between Austin Road and Jack Tone Road

The LOS analysis shows that the majority of the study mainline segments are projected to operate unacceptably (LOS E or F) under a.m. and p.m. peak hour conditions (see Table 4.11-20). Although project-generated traffic would be relatively low in relation to the cumulative traffic volumes, the addition of project traffic would exacerbate unacceptable LOS in the a.m. and/or p.m. peak hours. Therefore, this is considered a **significant** impact.

IMPACT 4.11-9 **Increases in Traffic Volumes on Freeway Ramps Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015).** *Traffic generated by the proposed project would exacerbate already unacceptable freeway ramp operations at the Airport Way and Union Road interchanges under cumulative plus project conditions. This would be a* ***significant*** *impact.*

Traffic generated by the proposed project would degrade freeway ramp operations at the Airport Way and Union Road interchanges. Based on analysis of freeway ramps, these two freeway ramps are projected to operate unacceptably (LOS E or F) under peak hour conditions. Although project-generated traffic would be relatively low in relation to the cumulative traffic volumes and these interchanges would operate unacceptably without the

project under cumulative conditions, the addition of project traffic would exacerbate unacceptable LOS in the peak hours. Therefore, this is considered a significant impact.

IMPACT 4.11-10 Impacts on Emergency Vehicle Access. *The project would provide adequate emergency access to the project site. However, construction vehicles could temporarily obstruct local roadways, which could impair the ability of local emergency response agencies to respond to an emergency in the project area. This would be a* ***less than significant*** *impact.*

With implementation of the project, emergency vehicular access would be provided along Union Road. Secondary access would be provided via Woodward Avenue. Two emergency vehicle access points would be maintained at all times.

Design and layout of all internal roadways and driveways would be done in consultation with the City of Manteca Public Works Department, City Fire Department, and City Police Department staff to ensure that the roadways and driveways provide adequate access for emergency vehicles (e.g., turning radii, lane width). Because the project applicant would be required to coordinate with the City Public Works Department, Fire Department, and Police Department to ensure adequate emergency access is provided, this impact would be less than significant.

The majority of project construction would occur in the project site footprint; however, construction of proposed intersection improvements could partially obstruct roadways in the project vicinity. Obstruction of these roadways could block or slow emergency response vehicles traveling on Union Road and could adversely affect the response times of emergency response agencies depending on the time of day (i.e., peak hours). This would be a **less than significant** impact.

IMPACT 4.11-11 Increased Roadway Congestion from Construction Traffic. *It is estimated that 120 one-way daily trips to the project site would be generated during peak construction periods. This could result in adverse effects on the operation of project area roadways during the peak commute periods. In addition, construction traffic, particularly truck traffic, could degrade pavement conditions along access roadways. This impact would be* ***potentially significant****.*

Project construction would result in short-term increases in traffic on project area roadways. Construction activities would require the hauling of equipment and materials to the project site and transportation of employees to and from off-site locations.

Construction would occur over approximately a 44-month period. It is estimated that a maximum of 30 construction workers would commute to the site on a daily basis resulting in 60 one-way daily trips. Additional daily trips would also occur with construction activities, including the delivery of materials and construction site operations. These operations are estimated to generate an additional 30 one-way daily trips for a total of 120 one-way daily trips during the construction period.

The number of proposed construction trips (i.e., maximum of 120 daily trips) is substantially less than the amount of trips (16,916 daily trips as shown in Table 4.11-13) generated by the proposed project. The majority of construction workers would arrive and depart before the morning and evening peak hours. However, if a large proportion of the construction-related vehicle trips were to occur during peak a.m. and p.m. commute periods construction traffic could substantially degrade operation of local roadways. These trips could contribute to existing unacceptable operations (LOS F) at three intersections as shown in Table 4.11-22, and construction traffic, particularly truck traffic, could degrade pavement conditions along access roadways to the project site. This would be a **potentially significant** impact.

IMPACT 4.11-12 Conformity with City Parking Requirements. *The project would provide off-street parking consistent with the City's parking ordinance. Therefore, this impact would be* ***less than significant.***

The City of Manteca Zoning Code for this site requires the provision of one space per 300 square feet of retail and one space per 2.5 restaurant seats. Based on the City's parking standards for each proposed use, it is estimated that the off-street parking requirement is 1,972 spaces. The project includes approximately 2,027 parking spaces situated in surface lots throughout the site. Therefore, this would be a **less than significant** impact.

4.11.4 MITIGATION MEASURES

All fair-share calculations for mitigation recommended below is presented in Appendix H2.

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.11-1: Increases in Project-Related Traffic Volumes on Local Roadway Segments.

Impact 4.11-3: Project and Cumulative Bicycle Circulation Impacts.

Impact 4.11-4: Project and Cumulative Pedestrian Circulation Impacts

Impact 4.11-10: Impacts on Emergency Vehicle Access.

Impact 4.11-12: Conformity with City Parking Requirements.

The following mitigation is provided for the potentially significant and significant impacts:

INCREASES IN PEAK HOUR TRAFFIC VOLUMES ON REGIONAL ROADWAYS RESULTING IN UNACCEPTABLE LEVELS OF SERVICE

Mitigation Measure 4.11-2a: Union Road/Daniels Street Intersection.

The applicant shall install a traffic signal, a northbound left-turn lane, a northbound through lane, and a southbound through lane. As shown in Table 4.11-22, the installation of a traffic signal, a northbound left-turn lane, a northbound through lane, and a southbound through lane would improve traffic operations to LOS A during both the a.m. and p.m. peak hour. However, due to close spacing with interim signals at the Union Road/eastbound SR 120 ramps, the signalization of this intersection is not feasible unless the interchange is reconstructed. The City and Caltrans are planning for and intend to reconstruct the Union Road/SR 120 interchange including signalizing the Union Road/Daniels Street intersection and reconstructing the interchange to improve the signal spacing between the westbound ramps intersection and Daniels Street. This would reduce the project's impact at this intersection to a less-than-significant level. Therefore, prior to issuance of a building permit, the applicant shall pay their fair share towards the reconstruction of the Union Road/SR 120 interchange (which includes intersection widening and signalization of the Union Road/Daniels Street intersection).

Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS/ MND) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvement.

Because implementation of these improvements prior to project buildout cannot be guaranteed and because the project's fair share contribution would be considerable, the recommended mitigation would be **potentially significant and unavoidable**.

Mitigation Measure 4.11-2b: Union Road/Eastbound SR 120 Ramps Intersection.

The applicant shall install a northbound right-turn lane. As shown in Table 4.11-22, the added northbound right-turn lane would improve traffic operations to LOS B and D during the a.m. and p.m. peak hour, respectively. Adequate right-of-way is available within the existing alignment to accommodate this improvement. Implementation of this mitigation would reduce the project's impact on the intersection to a **less-than-significant** level.

Table 4.11-22 shows the LOS for mitigated intersections.

Table 4.11-22
Existing Plus Project Mitigated Intersection Levels of Service

Intersection	Peak Hour[1]	Existing Plus Project		Existing Plus Project Mitigated	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]
4. Airport Way/SR 120 WB	a.m.	7 (28**)**	D	12	B
	p.m.	**>100 (>100)**	**F**	15	B
5. Airport Way/SR 120 EB	a.m.	5 (25)	D	23	C
	p.m.	**>100 (>100)**	**F**	29	C
10. Union Road/Daniels Street	a.m.	**5 (51)**	**F**	6	A
	p.m.	**30 (>100)**	**F**	7	A
11. Union Road/SR 120 WB	a.m.	**35 (>100)**	**F**	19	B
	p.m.	**>100 (>100)**	**F**	38	D
12. Union Road/SR 120 EB	a.m.	**26 (>100)**	**F**	12	B
	p.m.	**>100 (>100)**	**F**	46	D

Notes:
Bold highlighting denotes intersections with unacceptable operations (LOS E or F) that also meet peak-hour volume warrants.
Source: Compiled by Fehr & Peers in 2008

Mitigation Measure 4.11-4: Project and Cumulative Pedestrian Circulation Impacts.

Prior to approval of final maps, the applicant shall identify in project plans all required sidewalks along the project frontage per City standards. Implementation of this mitigation would reduce the project's impact on pedestrian travel to a **less-than-significant** level.

Mitigation Measure 4.11-5: Project and Cumulative Transit System Impacts.

Prior to approval of final maps, the project applicant shall coordinate with the City and modify project designs to provide appropriate bus transit facilities at the project site. These facilities shall be designed to meet Americans with Disabilities Act design standards and provide adequate width, vehicle and pedestrian circulation, turning radius of streets, driveways, and parking lots. These facilities could include, but are not limited to, one or more sheltered transit stops along the project frontage on either Atherton Drive or within the project site.

While the above measures would ensure that adequate transit facilities at the project site, it cannot be guaranteed that the City would be able to extend bus transit routes to the project site at the time the project begins operation. If bus transit services are provided to the site at the time of issuance of the first building permit, then this impact would be reduced to a less-than-significant level. However, because it cannot be guaranteed that adequate transit services would be in place prior to the opening of the project, for purposes of CEQA this impact would remain **significant and unavoidable**.

Cumulative Plus Project Impacts and Mitigation

As described above in the environmental setting, while many new roadway improvements are planned within the City, only a very limited number of improvements were assumed to be constructed under Cumulative Conditions because the updated PFIP fee, which would fund the implementation of these improvements, has not been adopted by the Manteca City Council and it cannot be guaranteed that these improvements would be in place prior

to operation of the project or that sufficient funding exists to implement these improvements. When combined with the growth anticipated in the future, the project in combination with cumulative development would result in a large number of roadway facilities that do not meet the City LOS standards. This section describes those impacts and recommends improvements from the updated PFIP project list as mitigation measures. The mitigation measures are summarized on Exhibits 4.11-16a and 4.11-16b. Because roadway segment mitigation measures often have a secondary benefit of improving intersection operations, roadway segment impacts and mitigation measures are be discussed first.

Several of the recommended cumulative plus project mitigation measures require that the project applicant pay a fair-share contribution towards an improvement. As described above, the City Council will be considering an update to the PFIP that will likely cover the cost of improvements that are identified within the PFIP, but it is unknown at this time whether the fee program will fully fund all improvements. Therefore, where fair share payments for projects funded by the PFIP are required, the project applicant would be required to do the following:

- Pay the PFIP fee in place at the time of building permit issuance;
- If the PFIP fee in place at the time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, then the project applicant shall also pay their fair-share of the unfunded portion of the roadway and intersection improvements.

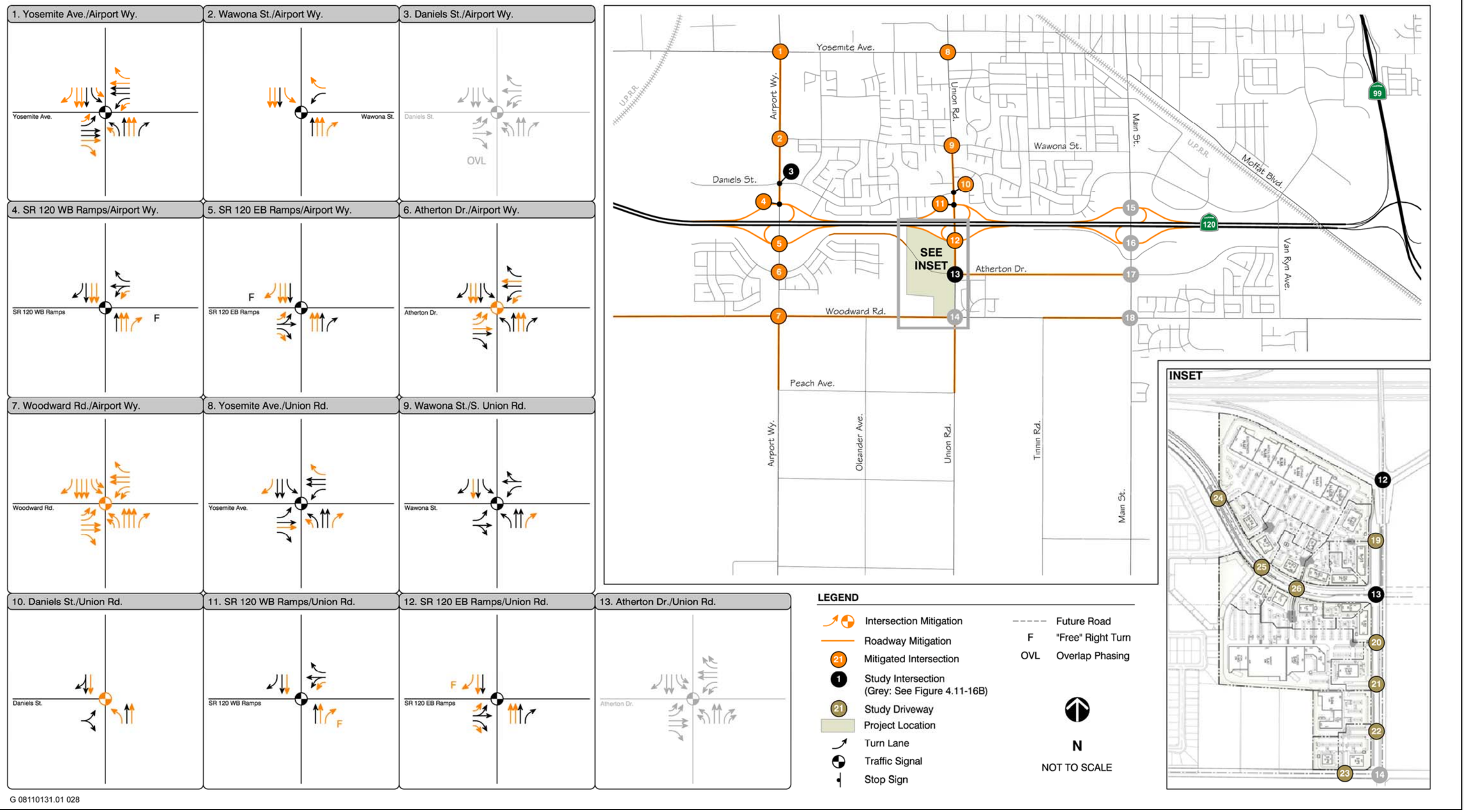
INCREASES IN PEAK HOUR TRAFFIC VOLUMES ON LOCAL ROADWAY SEGMENTS RESULTING IN UNACCEPTABLE LEVELS OF SERVICE UNDER CUMULATIVE PLUS PROJECT CONDITIONS

Mitigation Measure 4.11-6a: Atherton Drive between Union Road and Main Street.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Atherton Drive to four lanes between Union Road and Main Street. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement were fully analyzed in a previous environmental document (*Atherton Road Extension and Union Road Widening Project, Initial Study/Proposed Mitigated Negative Declaration*; November 27, 2006; SCH No. 2006112136). Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR would not occur.
- By widening this roadway segment to four lanes, roadway operations would improve to LOS C (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, this impact would be reduced to a **less-than-significant** level.

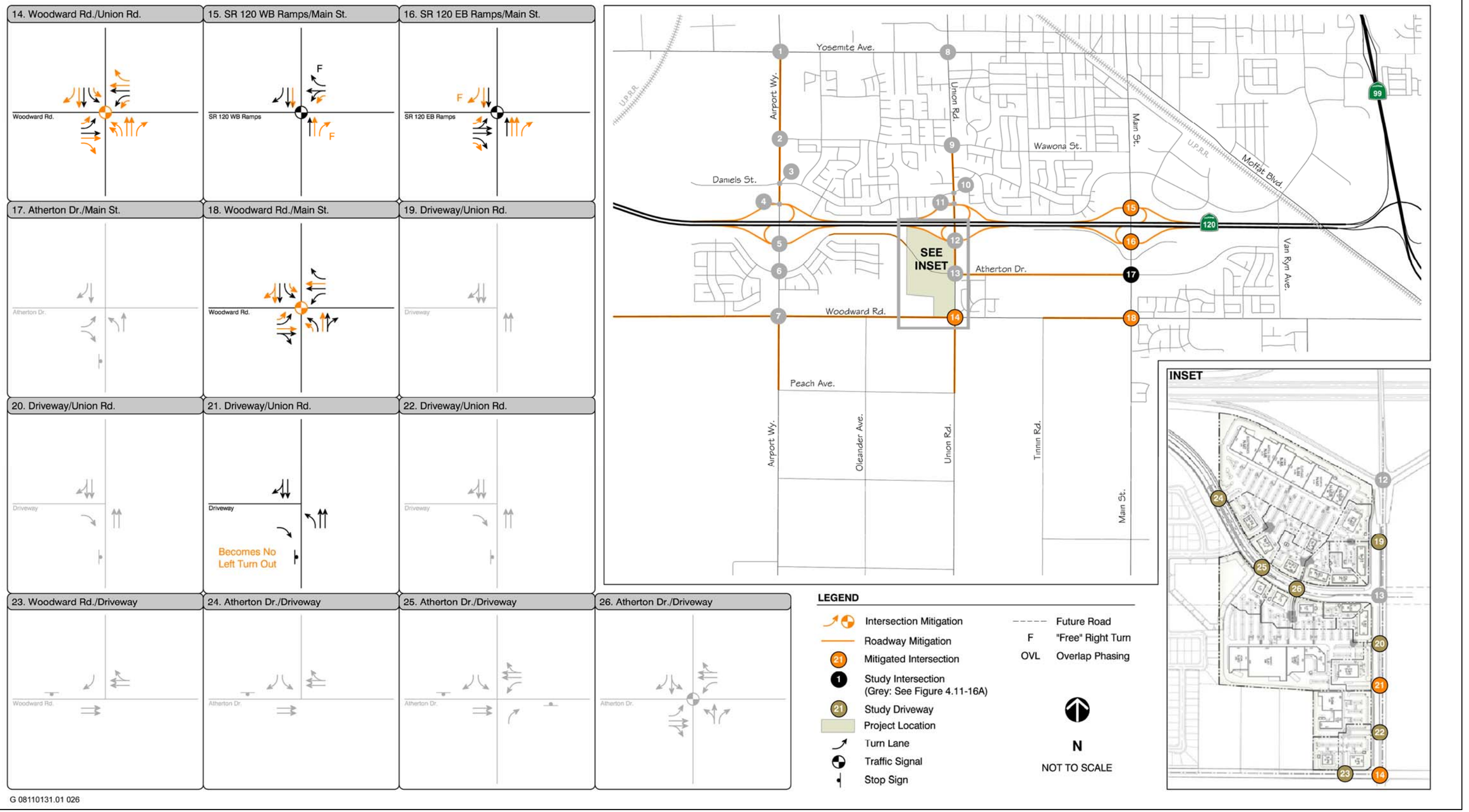
Mitigation Measure 4.11-6b: Airport Way between Yosemite Avenue and Daniels Street.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Yosemite Avenue and Daniels Street. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.



Source: Fehr & Peers 2008

Mitigated Lane Configurations – Cumulative Plus Project Conditions **Exhibit 4.11-16a**



Source: Fehr & Peers 2008

Mitigated Lane Configurations – Cumulative Plus Project Conditions **Exhibit 4.11-16b**

- By widening this roadway segment to six lanes, roadway operations would improve to LOS C (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6c: Airport Way between Daniels Street and SR 120.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Daniels Street and SR 120. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to six lanes, roadway operations would improve to LOS C (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6d: Airport Way between Atherton Drive and Woodward Avenue.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Atherton Drive and Woodward Avenue. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to six lanes, roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative

impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6e: Airport Way between Woodward Avenue and McKinley Avenue.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Airport Way to six lanes between Woodward Avenue and McKinley Avenue. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to six lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6f: Union Road between Daniels Street and SR 120.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Union Road to four lanes between Daniels Street and SR 120. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to four lanes roadway operations would improve to LOS D conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6g: Union Road between SR 120 and Atherton Drive.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Union Road to six lanes between SR 120 and Atherton Drive. Construction of this improvement would primarily occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts

related to construction of this improvement were fully analyzed in a previous environmental document (*Atherton Road Extension and Union Road Widening Project, Initial Study/Proposed Mitigated Negative Declaration*; November 27, 2006; SCH No. 2006112136). Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR would not occur.

- By widening this roadway segment to six lanes roadway operations would improve to LOS D conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, this impact would be reduced to a **less-than-significant** level.

Mitigation Measure 4.11-6h: Union Road between Woodward Avenue and Peach Avenue.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Union Road to four lanes between Woodward Avenue and Peach Avenue. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6i: Woodward Avenue between McKinley Avenue and Airport Way.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between McKinley Avenue and Airport Way. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6j: Woodward Avenue between Airport Way and Oleander Road.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between Airport Way and Oleander Road. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6k: Woodward Avenue between Oleander Road and Union Road.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between Oleander Road and Union Road. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-6l: Woodward Avenue between Tinnin Road and Main Street.

- Prior to issuance of any building permits, the applicant shall pay their fair share cost for widening of Woodward Avenue to four lanes between Tinnin Road and Main Street. Construction of this improvement would occur off the project site. Impacts associated with construction of this improvement would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the

project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

- By widening this roadway segment to four lanes roadway operations would improve to LOS C conditions (see Table 4.11-23). In addition, this mitigation measure would be consistent with the updated PFIP project list. Therefore, the cumulative operational impact to this roadway segment would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Table 4.11-23
Cumulative Plus Project Roadway Volumes & Levels of Service

Roadway Segment	Mitigated Lanes	Cumulative Plus Project Volume[1]	Level of Service[2]	
			Cumulative Plus Project	Cumulative Plus Project Mitigated
2. Atherton Drive, between Union Road and Main Street	4	15,800	F	C
3. Airport Way, between Yosemite Avenue and Daniels Street	6	26,600	F	C
4. Airport Way, between Daniels Street and SR 120	6	35,600	F	C
6. Airport Way, between Atherton Drive and Woodward Avenue	6	28,100	F	C
7. Airport Way, between Woodward Avenue and McKinley Avenue	6	15,000	E	C
9. Union Road, between Daniels Street and SR 120	4	30,200	F	D
10. Union Road, between SR 120 and Atherton Drive	6	38,100	F	D
12. Union Road, between Woodward Avenue and Peach Avenue	4	20,500	F	C
17. Woodward Avenue, between McKinley Avenue and Airport Way	4	17,400	F	C
18. Woodward Avenue, between Airport Way and Oleander Road	4	17,300	F	C
19. Woodward Avenue, between Oleander Road and Union Road	4	17,300	F	C
21. Woodward Avenue, between Tinnin Road and Main Street	4	15,500	F	C

Notes:
[1] Average daily 4.11ffic
[2] LOS = Level of service
Source: Compiled by Fehr & Peers in 2008

INCREASES IN PEAK HOUR TRAFFIC VOLUMES ON REGIONAL ROADWAYS RESULTING IN UNACCEPTABLE LEVELS OF SERVICE UNDER CUMULATIVE PLUS PROJECT CONDITIONS (2035)

Mitigation Measure 4.11-7a: Airport Way/Yosemite Avenue.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which have been identified in the PFIP projects list:

- Construct three northbound and southbound through lanes
- Construct three eastbound and westbound through lanes
- Construct dual left-turn lanes on all approaches
- Construct right-turn lanes on all approaches

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design for the improvement.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7b: Airport Way/Wawona Street.

Prior to issuance of any building permits, the applicant shall pay their fair-share of intersection improvements. The impact at this location could be reduced to a less than significant level by constructing the following intersection improvements identified in the PFIP projects list:

- Signalize the intersection
- Construct three northbound and southbound through lanes
- Construct a southbound left-turn lane, a northbound right-turn lane, and a westbound right-turn lane

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvement.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be

guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7c: Airport Way/SR 120 Westbound.

Prior to issuance of any building permits, the applicant shall pay their fair-share to reconstruct the SR 120/Airport Way interchange. The City of Manteca and Caltrans are currently preparing a Project Study Report (PSR) for future interchange improvements at Airport Way/SR 120. As part of the improvements, the Airport Way overpass and ramp terminal intersections would be designed to provide acceptable LOS D or better operations under cumulative conditions. The future design of the interchange is not yet finalized, but based on the PSR for the Union Road/SR 120 interchange (which is substantially similar to what is proposed for this interchange), and the PFIP project list, the Airport Way/SR 120 interchange would likely have a partial cloverleaf design. The overpass would include three through lanes in each direction. The design for the ramp terminal intersections would include dual left-turn lanes and dedicated right-turn lanes.

Reconstruction of the interchange would occur off the project site. Impacts associated with reconstruction of the interchange would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to reconstruction of the interchange would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design alignment for the improvement. Further, the City and Caltrans are working together to prepare the necessary environmental documents for this improvement.

With reconstruction of the interchange, the Airport Way / SR 120 westbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7d: Airport Way/SR 120 eastbound.

The applicant shall implement Mitigation Measure 4.11-7c.

With reconstruction of the interchange, the Airport Way / /SR 120 eastbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7e: Airport Way/Atherton Drive.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Signalize the intersection
- Construct three northbound and southbound through lanes
- Construct two eastbound and westbound through lanes
- Construct dual left-turn lanes on the eastbound and westbound approaches

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7f: Airport Way/Woodward Avenue.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Signalize the intersection
- Construct two left-turn lanes, three through lanes, and one right-turn lane on the northbound and southbound approaches
- Construct two left-turn lanes, two through lanes, and one right-turn lane on the eastbound and westbound approaches.

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential

construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7g: Union Road/Yosemite Avenue.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Construct dual left-turn lanes at the northbound approach
- Construct two eastbound through lanes
- Construct right-turn lanes on the westbound, southbound, and northbound approaches.

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7h: Union Road/Wawona Street.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Construct two southbound through lanes
- Construct a right-turn lane on the northbound approach.

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the

potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7i: Union Road/Daniels Street.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Signalize the intersection
- Construct two southbound through lanes
- Construct two northbound through lanes
- Construct a left-turn lane on the northbound approach.

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7j: Union Road/SR 120 westbound.

The applicant shall pay their fair-share to reconstruct the SR 120/Union Road interchange. The City of Manteca and Caltrans are currently preparing a Project Report/Environmental Document for future interchange improvements at Union Road/SR 120. As part of the improvements, the Union Road overpass and ramp terminal intersections would be designed to provide acceptable LOS D or better operations under cumulative conditions. The future design of the interchange is not yet finalized; but based on the PSR for the interchange and the PFIP project list it would likely have a partial cloverleaf design. The overpass would include two through lanes in each direction. The design for the ramp terminal intersections would include dual left-turn lanes and dedicated right-turn lanes.

Reconstruction of this interchange would occur off the project site. Impacts associated with reconstruction of this interchange would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to reconstruction of this interchange would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to this improvement outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed alignment for the improvement.

With reconstruction of this interchange, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be

guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7k: Union Road/SR 120 eastbound.

The applicant shall implement Mitigation Measure 4.11-7j.

With reconstruction of the Union Road / SR 120 interchange, the Union Road / SR 120 eastbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7l: Union Road/Woodward Avenue.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Signalize the intersection
- Construct two left-turn lanes, two through lanes, and one right-turn lane on each approach.

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7m: Main Street/SR 120 westbound.

The applicant shall implement Mitigation Measure 4.11-7j.

With reconstruction of the Union Road / SR 120 interchange, the Union Road / SR 120 westbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the

mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7n: Main Street/SR 120 eastbound.

The applicant shall implement Mitigation Measure 4.11-7j.

With reconstruction of the Union Road / SR 120 interchange, the Main Street / SR 120 eastbound ramp intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7o: Main Street/Woodward Avenue.

Prior to issuance of any building permits, the applicant shall pay their fair-share of the following intersection improvements, which are identified in the PFIP projects list:

- Signalize the intersection
- Construct two through lanes at each approach
- Construct dual lefts on the northbound, southbound, and westbound approaches

Construction of these improvements would occur off the project site. Impacts associated with construction of these improvements would generally consist of construction-related air, noise, biological habitat, and traffic impacts. Specific environmental impacts related to construction of this improvement would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Therefore, additional significant environmental impacts not already identified or evaluated in this DEIR could occur. However, at this time it is too speculative to determine these impacts without a proposed design and alignment for the improvements.

With implementation of these improvements, the intersection would operate at an acceptable LOS during the a.m. and p.m. peak hours, as shown in Table 4.11-24. Therefore, the cumulative operational impact to this intersection would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because implementation of these improvements prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-7p: Union Road/Project Access Driveway (Study intersection #21).

The applicant shall prohibit left turn outs at the Union Road/Project Access Driveway (Study Intersection #21).

This intersection operates acceptably with left turns out in the existing plus project scenario; however, at a time between the existing plus project scenario and the cumulative plus project scenario intersection operations become unacceptable. Therefore, the applicant shall either 1) alter the site plan to show no left turns out or 2) construct the intersection to allow left turns out and pay the City of Manteca to monitor the intersection annually to determine when operations fall below acceptable levels and the turning movement shall be prohibited. The effects of prohibiting left turns out at this intersection were examined on the Union Road/Atherton Drive and Atherton

Drive/Project Access 26 intersections to ensure that operations remained acceptable. When left turns are prohibited, the applicant shall construct a pork-chop island or a raised center median to ensure that vehicles are physically prohibited from making this movement.

With implementation of this mitigation, this impact would be reduced to a **less-than-significant** level.

Table 4.11-24
Cumulative Plus Project Mitigated Intersection Levels of Service

Intersection	Peak Hour[1]	Cumulative Plus Project		Cumulative Plus Project Mitigated	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Airport Way/Yosemite Avenue	a.m.	**>100**	**F**	28	C
	p.m.	**>100**	**F**	29	C
2. Airport Way/Wawona Street	a.m.	**>100 (>100)**	**F**	9	A
	p.m.	**>100 (>100)**	**F**	8	A
4. Airport Way/SR 120 WB	a.m.	**>100**	**F**	17	B
	p.m.	**>100**	**F**	22	C
5. Airport Way/SR 120 EB	a.m.	**>100**	**F**	15	B
	p.m.	**>100**	**F**	27	C
6. Airport Way/Atherton Drive	a.m.	**>100 (>100)**	**F**	44	D
	p.m.	**>100 (>100)**	**F**	37	D
7. Airport Way/Woodward Avenue	a.m.	**>100**	**F**	20	C
	p.m.	**>100**	**F**	25	C
8. Union Road/Yosemite Avenue	a.m.	**91**	**F**	29	C
	p.m.	**74**	**E**	33	C
9. Union Road/Wawona Street	a.m.	**>100**	**F**	33	C
	p.m.	**>100**	**F**	30	C
10. Union Road/Daniels Street	a.m.	**>100 (>100)**	**F**	12	B
	p.m.	**>100 (>100)**	**F**	14	B
11. Union Road/SR 120 WB	a.m.	**>100**	**F**	11	B
	p.m.	**>100**	**F**	18	B
12. Union Road/SR 120 EB	a.m.	**>100**	**F**	12	B
	p.m.	**>100**	**F**	28	C
14. Union Road/Woodward Avenue	a.m.	**>100**	**F**	26	C
	p.m.	**>100**	**F**	22	C
15. Main Street/SR 120 WB	a.m.	54	D	14	B
	p.m.	**>100**	**F**	25	C
16. Main Street/SR 120 EB	a.m.	**>100**	**F**	14	B
	p.m.	**>100**	**F**	24	C
18. Main Street/Woodward Avenue	a.m.	**>100**	**F**	32	C
	p.m.	**>100**	**F**	29	C
21. Union Road/Project Access	a.m.	**1 (46)**	**E**	1 (10)	B
	p.m.	**>100 (>100)**	**F**	1 (12)	B

Notes:
Bold highlighting denotes intersections with unacceptable operations (LOS E or F) that also meet peak-hour volume warrants.
Source: Compiled by Fehr & Peers in 2008

Mitigation Measure 4.11-8: Fair-Share of Atherton Drive Extension and Pay Regional Transportation Impact Fee

Prior to issuance of any building permits, the applicant shall pay their fair-share to extend Atherton Drive westerly from the project site to connect to the existing terminus of Atherton Drive near Sparrowhawk Street. This alignment extension has been evaluated as part of the City's General Plan and EIR. No additional significant impacts not previously identified in this EIR would occur with this improvement. This connection would offer another route for project trips to Airport Way without using the state highway system. Although this improvement would reduce congestion on SR 120, it is unlikely that the densities on SR 120 would be reduced to acceptable levels.

In addition, prior to issuance of any building permits, the project applicant shall pay their fair-share of the SJCOG regional transportation impact fee to support current and future freeway widening projects in the area. With payment of this fee, the project's cumulative impacts would be reduced to a less-than-significant level. Caltrans currently does not have any plans for further widening of SR 99 or SR 120 and a funding mechanism for improvements at the identified segments has not been established by Caltrans. The City of Manteca acknowledges its lead agency responsibilities to address potential significant impacts to traffic including on the state highway system that may result from City approved projects. The City is committed to work in good faith with Caltrans and our other regional partners to provide feasible mitigation measures to address these impacts. While a funding mechanism has not been established and improvements have not been identified, the project applicant and the City shall coordinate with Caltrans to identify the specific fair share costs and the funding mechanism that would be used to construct these improvements along the State highway system.

The cumulative conditions analysis assumed that the SR 120 (between I-5 and SR 99) and SR 99 (between SR 4 and SR 120) widening projects were completed. If each of the freeway segments were widened an additional lane, the operation of these freeway segments would improve to an acceptable LOS under Cumulative Plus Project conditions, which is acceptable based on Caltrans standards. Therefore, the cumulative operational impact to these freeway segments would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because it is unknown whether this mitigation would be implemented prior to project buildout and whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be **potentially significant and unavoidable** and the project's contribution would be considerable.

Mitigation Measure 4.11-9: Airport Way/SR 120 Ramp Junctions and Union Road/SR 120 Ramp Junctions.

The applicant shall implement Mitigation Measures 4.11-7c, 4.11-7d, 4.11-7j, and 4.11-7k. Implementation of improvements at the Airport Way/SR 120 and Union Road/SR 120 interchanges would improve ramp terminal intersection operations by adding additional turn lanes. In addition, auxiliary lanes would be constructed on SR 120 when the Airport Way and Union Road interchanges are reconstructed. With the addition of auxiliary lanes at these interchanges, the project's impacts would be reduced to as less-than-significant level because the additional capacity created by the auxiliary lanes would be greater than the additional traffic generated by the projects. With implementation of this mitigation, this impact would be reduced to a **less-than-significant** level.

Mitigation Measure 4.11-11: Prepare and Implement a Construction Traffic Management Plan.

Prior to the issuance of building permits, the project applicant shall prepare a Construction Management Plan and submit the plan to the City of Manteca Public Works Department for review and approval. The Construction Management Plan shall identify the timing of construction and the timing of elements that would result in the full or partial blockage of local roadways. The plan shall specify the measures that would be implemented to minimize traffic-related impacts, including construction parking during construction, which shall be limited to on-site areas or facilities designated for parking uses (e.g., parking lots). These measures could include, but are not limited to the following: use of signage notifying travelers that they are entering a construction zone; and use of

cones, flaggers, and guide-vehicles to direct traffic through the construction zone. In addition, the plan shall include, at a minimum, the following conditions:

- Local roadways shall be jointly monitored by the City and project applicant every six months to determine whether project-related construction traffic is degrading roadway conditions. Roadways with potential to be damaged by construction traffic and included in the monitoring effort shall be agreed to by the City and the project applicant.

- All degradation of pavement conditions because of project-related construction traffic shall be fully repaired by the project applicant to the satisfaction of the City of Manteca, based on maintaining at least preconstruction conditions.

- Procedures shall be provided for any road closures and movement of large construction vehicles such as cranes and dump trucks.

- Plans shall be provided for lane closures, including times (e.g., limit closures to between 9:00 a.m. and 4:00 p.m.).

- A copy of the plan shall be submitted to local emergency response agencies and these agencies shall be notified at least 14 days before the commencement of construction that would partially or fully obstruct local roadways.

With implementation of this mitigation, this impact would be reduced to a **less-than-significant** level.

4.11.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the above mitigation measures, the project's impacts to local area intersections under the following conditions would be reduced to a less-than-significant level because the project applicant would install roadway modifications and/or prepare or revise appropriate plans and project designs to avoid these impacts:

- project and cumulative bicycle circulation impacts (Impact 4.11-3)
- project and cumulative pedestrian circulation impacts (Impact 4.11-4)
- Atherton Drive between Union Road and Main Street (Impacts 4.11-6a)
- Union Road between Woodward Avenue and Peach Avenue (Impact 4.11-6g)
- Union Road/Project Access Driveway (Study intersection #21) (Impact 4.11-7p)
- Airport Way/SR 120 Junctions and Union Road/SR 120 Ramp Junctions (Impact 4.11-9)
- emergency vehicle access (Impact 4.11-10), and
- construction traffic impact (Impact 4.11-12).

However, for some intersections (Union Road/Daniels Street; Union Road/westbound SR 120 ramps; and Union Road/eastbound SR 120 ramps), recommended improvements are either subject to the control of Caltrans and/or it is unknown whether the improvements would be implemented at the time the project builds out. Therefore, for purposes of CEQA, this would be considered a significant and unavoidable impact (Impacts 4.11-2a, b, and c).

It cannot be guaranteed with implementation of proposed mitigation that adequate transit services would be in place prior to the opening of the project. Therefore, the project and cumulative bus transit services impact would remain significant and unavoidable (Impact 4.11-5).

The project would contribute trips to 12 roadway segments and would potentially exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. Implementation of improvements to 10 of these 12 segments prior to project buildout cannot be guaranteed and because it is unknown whether mitigation would be available to fully mitigate potential construction-related impacts associated

with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable (Impact 4.11-6 b, c, d, e, f, h, i, j, k, and l).

The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service and warrant the need for improvements at 16 intersections under cumulative plus project conditions (refer to intersections listed under Impact 4.11-7). With the exception of recommended improvements at 1 segment, the recommended improvements for these impacts are subject to the control of Caltrans and it is unknown whether the improvements would be implemented at the time the project builds and/or whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level. Therefore, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable (Impact 4.11-7 a through o).

Under cumulative no project conditions, 8 freeway mainline segments would operate at an unacceptable LOS during peak hours. With implementation of the project, the project would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. With implementation of the above mitigation measure (Mitigation Measure 4.11-8), the cumulative operational impact to these freeway segments would be reduced to a less-than-significant level and the project's contribution to this impact would not be considerable. However, because it is unknown whether this mitigation would be implemented prior to project buildout and whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level, the potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable (Impact 4.11-8).

Traffic generated by the proposed project would degrade freeway ramp operations at the Airport Way and Union Road interchanges. Although project-generated traffic would be relatively low in relation to the cumulative traffic volumes and these interchanges would operate unacceptably without the project under cumulative conditions, the addition of project traffic would exacerbate unacceptable LOS in the peak hours. Therefore, this is considered a significant impact. Implementation of improvements at the Airport Way/SR 120 and Union Road/SR 120 interchanges would improve ramp terminal intersection operations by adding additional turn lanes. In addition, auxiliary lanes would be constructed on SR 120 when the Airport Way and Union Road interchanges are reconstructed. With fair-share payments to improve these interchanges, the project's impacts would be reduced to a less-than-significant level because the additional capacity created by the addition of auxiliary lanes would be greater than the additional traffic generated by the projects (Impact 4.11-9).

4.12 CULTURAL RESOURCES

This section addresses known archaeological and historic resources in the project area, as well as the potential for undocumented cultural resources to exist. The analysis includes a description of the existing environmental conditions, the methods used for evaluation, the impacts associated with implementing the proposed project, and the mitigation measures necessary to reduce impacts to less-than-significant levels. Findings and recommendations are based on a cultural resources investigation conducted by Jensen (2006), supplemented with additional field studies and background research conducted by EDAW (2008). Authorized individuals may review the cultural resources reports, which are on file at the Central California Information Center (CCIC) of the California Historical Resources Information System.

4.12.1 ENVIRONMENTAL SETTING

REGIONAL ARCHAEOLOGICAL SETTING

The earliest well-documented entry and spread of humans into California occurred at the beginning of the Paleo Indian Period (10,000–6000 B.C.). Social units are thought to have been small and highly mobile. Known sites have been identified within the contexts of ancient pluvial lake shores and coast lines evidenced by such characteristic hunting implements as fluted projectile points and chipped stone crescent forms. Prehistoric adaptations over the ensuing centuries have been identified in the archaeological record by numerous researchers working in the area since the early 1900s, as summarized by Fredrickson (1974) and Moratto (1984).

Beardsley (1948) and Lillard, Heizer, and Fenenga (1939) and others conducted numerous studies that form the core of our early understanding of upper Central Valley archaeology. Little has been found archaeologically that dates to the Paleo Indian (10,000–6000 B.C.) or the Lower Archaic time periods; however, archaeologists have recovered a great deal of data from sites occupied by the Middle Archaic period. The lack of sites from earlier periods may be attributable to high sedimentation rates that left the earliest sites deeply buried and inaccessible. During the Middle Archaic Period (3000–1000 B.C.), the broad regional patterns of foraging subsistence strategies gave way to more intensive procurement practices. Subsistence economies were more diversified, possibly including the introduction of acorn-processing technology. Human populations were growing and occupying more diverse settings. Permanent villages that were occupied throughout the year were established, primarily along major waterways. The onset of status distinctions and other indicators of growing sociopolitical complexity mark the Upper Archaic Period (1000 B.C. to A.D. 500). Exchange systems become more complex and formalized. Evidence of regular, sustained trade between groups was seen for the first time.

Several technological and social changes characterized the Emergent Period (A.D. 500–1800). The bow and arrow were introduced, ultimately replacing the dart and atlatl (a spear-throwing device). Territorial boundaries between groups became well established. It became increasingly common that distinctions in an individual's social status could be linked to acquired wealth. Exchange of goods between groups became more regularized with more goods, including raw materials, entering into the exchange networks. In the latter portion of this period (A.D. 1500–1800), exchange relations became highly regularized and sophisticated. The clamshell disk bead became a monetary unit for exchange, and increasing quantities of goods moved greater distances. Specialists arose to govern various aspects of production and exchange.

Two specific cultural manifestations are well represented in archaeological assemblages in the general vicinity of the project area. These assemblages are discussed in detail in Moratto (1984) and summarized here. The Windmiller Pattern (3000–500 B.C.) of archaeological assemblages included an increased emphasis on acorn use, as well as a continuation of hunting and fishing activities. Ground and polished charmstones, twined basketry, baked clay artifacts, and worked shell and bone were hallmarks of Windmiller culture. Widely ranging trade patterns brought goods in from the Coast Ranges and trans-Sierran sources, as well as closer trading partners. Distinctive burial practices identified with the Windmiller Pattern also appeared in the Sierra Nevada foothills, indicating possible seasonal migration into the Sierra Nevada. The Berkeley Pattern (500 B.C. to A.D. 700)

represented a greater reliance on acorns as a food source than was seen previously. Distinctive stone and shell artifacts distinguished it from earlier or later cultural expressions. The Berkeley Pattern appears to have developed in the Bay Area and was spread through the migration of Plains Miwok Indians. Dating of the Berkeley Pattern varies across central California; in the Stockton region, the Windmiller Pattern continued longer than in other areas, gradually giving way to the changes that marked the Berkeley Pattern and which might represent the emergence of the Northern Valley Yokuts in this area.

ETHNOGRAPHIC SETTING

Ethnographically, the Northern Valley Yokuts occupied the project vicinity—that is, the land on either side of the San Joaquin River from the Delta to south of Mendota. The Diablo range probably marked the Yokuts' western boundary (Wallace 1978); the eastern edge would have lain along the Sierra Nevada foothills. Yokuts occupation of the northern parts of the range may be relatively recent, as linguistic evidence points toward an earlier Miwok occupation. The Yokuts gradually expanded their range northward and clearly occupied the area during the Spanish Colonial period, as mixed historic and prehistoric artifact assemblages have revealed. The late prehistoric Yokuts may have been the largest ethnic group in precontact California. The triblet, populated by a few hundred to a few thousand occupants, served as the basic political unit (Moratto 1984). Structures ranged from single-family dwellings to multifamily communal structures and included sweat houses and ceremonial lodges.

Euro-American contact with the Northern Valley Yokuts began with infrequent excursions by Spanish explorers traveling through the Sacramento–San Joaquin Valley in the late 1700s to early 1800s. Many missionaries lured or captured the Yokuts, then scattered the Yokuts among the various missions. Many escaped and returned to the valley. Yokuts raiding parties targeting the Spanish (and later Mexican) cattle herds became prevalent, leading to the settlers taking retaliatory actions. The malaria epidemic of 1833 decimated the Yokuts population, killing thousands of the tribesmen. The influx of Europeans during the Gold Rush era further reduced the population through disease and violent relations with the miners. Although there was no gold within the Yokuts territory, miners passing through on their way to the diggings caused a certain amount of upheaval. Many former miners who had seen the richness of the San Joaquin Valley on their way east later returned to settle and farm the area (Wallace 1978). Currently, the Nototonme/North Valley Yokut Tribe, Inc., a group of native people whose spokesperson is Katherine Erolina Perez, represents the Northern Valley Yokuts in the Stockton region. The group is dedicated to the preservation of their cultural heritage which involves preserving, documenting, and interpreting their past including archaeological and human remains

HISTORIC SETTING

The earliest known European settlers in the San Joaquin County area were trappers with the Hudson's Bay Company, many of whom were of French descent. Several of these early settlers inhabited the area still known today as French Camp, located to the north of the project site

The project area is situated on what was originally the *Campo de los Franceses* land grant. This grant was made to Guillermo Gulnac in 1843. The grant consisted of over 48,000 acres near French Camp (Beck and Haase 1974). Gulnac entered into a partnership with Captain C.M. Weber, a German immigrant. Weber had brief stays in New Orleans and Salt Lake City before making his way to Sutter's Fort. There he was employed as an overseer and general assistant to Sutter. Weber moved to Stockton in 1847, after receiving a half interest in the rancho from Gulnac. He later purchased the other half interest. Weber actively encouraged settlement and convinced others to the region by offering them land (Cook 1975).

Joshua Cowell, known as the "Father of Manteca," was one of the early settlers in the area arriving in 1862. Cowell is credited with having established dairying in the region. Cowell built several of the earliest buildings in the Manteca area. His efforts resulted in the area being named Cowell Station after the Central Pacific Railroad built a line through the region. In 1897, Cowell Station was renamed Manteca (Spanish for "lard"). The origin of

the city's present name is debated; however, many of California's early dairymen were Azorian Portuguese, and their word *manteiga* (butter) could easily have been corrupted to the present spelling (Covello and Hillman 1985).

Agriculture and irrigation played a huge role in the growth of Manteca. Alfalfa, orchards, diversified crops, and large-scale dairying operations were all instrumental to the economy. The once-prevalent large grain farms were divided into smaller plots, usually 40 acres. The increased number of farms resulted in a rapidly expanding population. Further expansion came with the creation of the South San Joaquin Irrigation District in 1909.

The first organized government consisted of a board of trade, which was a cross between a city council and a chamber of commerce. The early town government was disbanded when the failure of a local septic tank system resulted in quarantine from the State Department of Health in 1918. To fund the bond issue for the installation of a sewer system, the town was incorporated. The new city council approved several projects for the area, among them a new jail, street signs, the purchase of a firebell, and street curbs for Yosemite Avenue between Main Street and the Southern Pacific Railroad track (formerly the Central Pacific) (Covello and Hillman 1985).

Early utilities in Manteca included a privately owned water works, which was originally established around the turn of the century, and later sold to the city in 1928. Electricity arrived to the area in 1911 via the Sierra and San Francisco Electric Company. The Pacific Gas and Electric Company purchased this utility in 1920. The Stanislaus and San Joaquin Water Company constructed the first irrigation system around the turn of the century (Covello and Hillman 1985).

Much of the local industry in Manteca developed through association with agricultural activities. The dairy skimming station, which originally started in an old box car in 1896, grew to a company that produced 1,250 pounds of butter by 1915. By 1920, dairy farming was the largest enterprise in south San Joaquin County. One of the best known industries in Manteca, the Spreckles sugar mill, opened in 1918 and was one of the largest agri-businesses in San Joaquin County. During the 1930s, the Manteca Cream and Butter Company, with its front-room ice cream parlor, was a popular stop for motorists traveling between the Sierra and the Bay Area (Covello and Hillman 1985).

Beginning in the late 1940s and the ensuing decades, Manteca became a popular bedroom community because of its proximity to Stockton, Tracy, and Modesto. Its growth and reputation as a burgeoning location for families to settle led to Manteca becoming known as "The Family City" (City of Manteca 2008).

4.12.2 REGULATORY SETTING

STATE CEQA GUIDELINES

CEQA offers guidelines regarding impacts on historic and prehistoric cultural resources. CEQA states that if implementation of a project would result in significant impacts on important cultural resources, then alternative plans or mitigation measures must be considered. However, only significant cultural resources need to be addressed. State CEQA Guidelines define a significant historical resource as "a resource listed or eligible for listing on the California Register of Historical Resources" (Public Resources Code [PRC] Section 5024.1). A historical resource may be eligible for listing on the CRHR if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or

2. is associated with the lives of persons important in our past; or

3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possess high artistic values; or

4. has yielded, or may be likely to yield, information important in prehistory or history.

Additionally, to be eligible for listing on the CRHR a property must possess sufficient integrity. That is, a property must retain enough physical identity to its period of significance. Integrity is evaluated in regard to the retention of materials, design, workmanship, setting, location, feeling, and association. The concept of integrity is particularly important when considering the eligibility of historic buildings and structures.

The State CEQA Guidelines also requires the consideration of unique archaeological sites (Section 15064.5). If an archaeological site does not meet the criteria for inclusion on the CRHR but does meet the definition of a unique archaeological resource as outlined in the PRC (Section 21083.2), it may be treated as a significant historical resource. Treatment options under Section 21083.2 of CEQA 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 criteria for defining a "unique archaeological resource").

PRC Section 15064.5(e) of the State CEQA Guidelines 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 Native American in origin, the NAHC must be contacted within 24 hours. At that time, Section 15064.5(d) of the State CEQA Guidelines directs the lead agency to consult with the appropriate Native Americans as identified by the NAHC and directs the lead agency (or applicant) to develop an agreement with the Native Americans for the treatment and disposition of the remains.

For historic buildings, Section 15064.5(b)(3) of the State CEQA Guidelines indicates that a project that follows the Secretary of the Interior 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 on the integrity of the resource. Integrity is defined as the retention of the resource's physical identity that existed during its period of significance. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling and association of the resource.

CITY OF MANTECA GENERAL PLAN

The Resource Conservation Element of the *City of Manteca General Plan 2023* (City General Plan) outlines goals and policies associated with geology and soils. The following policies relate to the proposed project:

- **Policy RC-P-37:** The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without consulting the California Archaeological Inventory at Stanislaus State University, conducting a site evaluation as may be indicated, and attempting to mitigate any adverse impacts according to the recommendation of a qualified archaeologist. City implementation of this policy shall be guided by the California Environmental Quality Act (CEQA) and the National Historic Preservation Act (NHPA).

- **Policy RC-P-38:** The City shall require that the proponent of any development proposal in an area with potential archaeological resources, and specifically near the San Joaquin River and Walthall Slough, and on the east side of State Route 99 at the Louise Avenue crossing, shall consult with the California Archaeological Inventory, Stanislaus State University to determine the potential for discovery of cultural resources, conduct a site evaluation as may be indicated, and mitigate any adverse impacts according to the recommendation of a qualified archaeologist. The survey and mitigation shall be developer funded.

The City General Plan further requires record searches unless the City determines that the proposed project area has already been sufficiently surveyed, requires archaeological surveys where probable cause exists for discovery of archaeological resources, requires consultation, evaluation, and preparation of a monitoring plan if resources are discovered, encourages the placement of monuments or plaques to recognize historic sites and structures, and requires consultation with the county coroner if human remains are discovered. The analysis presented below conforms to the City's requirement for cultural resource investigations.

4.12.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

This study included prefield research consisting of a records search conducted through the CCIC, an intensive field survey of the project site, Native American coordination, and documentation of the investigation. The prefield research and study results are detailed below. The potential for effects on cultural resources are evaluated for development on the proposed project site.

Prefield Research

Records Search

The research into cultural resource issues for the proposed project began with a records search of pertinent cultural resource information. This search was conducted at the CCIC in September of 2008. The search provided supplemental information to a records search conducted in July of 2005 for the Oleander/Sundance Estates project (EDAW 2006). The results of these records searches are presented in Appendix I. The records search included a review of select publications, maps, and properties listed in the following sources:

- *National Register of Historic Places* (National Park Service 1996, and updates),
- *California Register of Historical Resources* (State of California 2001),
- *California Inventory of Historic Resources* (State of California 1976),
- *California Points of Historical Interest* (State of California 1992 and updates),
- *California Historical Landmarks* (State of California 1996 and updates), and
- *Directory of Properties in the Historical Resources Inventory* (State of California 1976, and updates),
- *Historic Property Data File* (Office of Historic Preservation computer list dated May 2, 2005),
- *California Department of Transportation (Caltrans) State and Local Bridge Survey* (1987, 1989 and 2000),
- *Survey of Surveys* (CCIC 1989),
- *General Land Office (GLO) Plat Maps* (Township 2S, Range 7E, 1854),
- *Manteca, CA USGS quadrangle map* (USGS 1952 edition), and
- *Public Schools of San Joaquin County (1852-1900)*, (San Joaquin County Superintendent of Schools 1991).

Review of Previous Investigations and Historic Records

The files maintained at the CCIC contain information on previous archaeological investigations that were conducted in the vicinity of the proposed project. Table 4.12-1 lists past investigations directly related to the project site. Copies of these reports are on file at the CCIC, California State University, Stanislaus, in Turlock, California.

As shown in Table 4.12-1, the CCIC files indicate that one investigation (Jensen 2006) was previously conducted within the project site. Jensen conducted a pedestrian survey of the project site which did not include inventory along Woodward Avenue. His report indicated that no prehistoric or historic-era cultural resources are located within the project site.

A total of six studies have been conducted within one-quarter mile of the project. Of these six investigations, two (Napton 1993 and Windmiller and Napoli 2002) consisted of a records search only. Based on this research Napton (1993) concluded that the area possesses a moderate to high potential for the discovery of prehistoric and historic cultural resources. Field investigations by Chavez (1981) and Montgomery (1981) north of State Route 120, and cursory investigation by ASI (1998) along Woodward Avenue, which forms the southern boundary of the project failed to identify archaeological resources or historic-era structures or buildings in the vicinity of the project. Investigations by Baloian et al. (2004), consisted of an inventory along Ferry Road and Woodward Avenue for the South San Joaquin Irrigation District, and resulted in the documentation of 18 new resources and six previously identified resources; none of these identified resources are within a one-quarter mile radius of the proposed

project site. Cultural resources inventory and assessment for the Sundance and Oleander Developments (EDAW 2006) resulted in the identification of four agricultural complexes within historic-era buildings and structures to the south and west of the current project. None of these historic-era buildings and structures were found to qualify for inclusion in the CRHR.

Table 4.12-1
Previous Cultural Resource Investigations within and near the Proposed Project Site

Title	Author (Date)	CCIC File No.
Investigation within the Proposed Project Site		
Archaeological Inventory Survey, Manteca Annexation Project, c 60-acres Adjacent to Union Road and S.R. 120, San Joaquin County, California	Jensen (2006)	SJ-6322
Investigations near the Proposed Project Site		
Cultural Resources Evaluation for the Manteca Wastewater Project, San Joaquin County, California	Montgomery (1981)	SJ-729
Preliminary Cultural Resources Investigation for the South Manteca Area Plan, 7,800 Acres in San Joaquin County, California	Napton (1993)	SJ-1900
Cultural Resources Survey South County Surface Water Project, San Joaquin County, California	ASI Archaeology and Cultural Resource Management (1998)	SJ-6625
City of Manteca General Plan Update – Archaeological and Historical Background Reports	Windmiller (2002)	SJ-4786
Cultural Resources Investigations for the South San Joaquin Irrigation District in San Joaquin County, California	Baloian et al. (2004)	SJ-5309
Cultural Resource Inventory and Assessment for Sundance, and Oleander Projects, San Joaquin County, California	EDAW (2006)	—

Source: CCIC 2005 and 2008, data compiled by EDAW in 2008

A review of historic maps revealed the presence of a road and buildings/structures within the current project. The 1854 GLO Plat map for Township 2 South, Range 7 East depicts a southeast-northwest oriented road that bisects the project, and the Manteca 1952 USGS quadrangle map indicates the presence of a building on the northwest corner of South Union Road and Woodward Avenue.

Field Reconnaissance

The records search information was supplemented with a field survey performed by EDAW archaeologists Richard Deis and Anna Starkey on September 23, 2008. This survey consisted of a sample of the area previously investigated by Jensen in 2006. The project site was found to consist of fallow agricultural fields with a small percentage of the acreage in the southeast corner of the project containing an almond orchard. Ground visibility throughout the project area ranged from 40% to 100%. The archaeologists performed pedestrian transects spaced at 10-meter intervals. Irrigation ditch profiles and areas of rodent disturbance were examined for areas of darkened sediments, burned and unburned bone, and prehistoric and historic-era artifacts, which may be indications of buried intact subsurface cultural deposits.

Native American Consultation

Prior to conducting fieldwork, EDAW consulted with the Native American Heritage Commission (NAHC). Initiation of this contact included a letter to the NAHC to request a search of the NAHC sacred land files and a list of individuals and groups who might have an interest in or knowledge of culturally sensitive areas in the project area. The response from the NAHC indicated that record search of the Sacred Lands File failed to indicate the

presence of Native American cultural resources in the immediate project area. Information was also solicited from Katherine Erolinda Perez, representative of the Northern Valley Yokuts. A follow-up phone message was also left for Ms. Perez. To date, a reply has not been received from Ms. Perez.

Survey Results

As mentioned above historic-era maps depict a building on South Union Avenue, north of Woodward Avenue; however, field reconnaissance indicated that the structure had been removed and there is no evidence for the presence of archaeological deposits such as foundation and artifacts that may have been associated with this building. One contemporary residence is present along the north side of Woodward Avenue within the current project site. However, based on existing structural elements this house appears to have been built in the 1980s or early 1990s, which is consistent with the Manteca USGS quadrangle which does not depict a building at this location until 1987. The building is not considered to be of "exceptional importance," which is the criteria for listing of a structure under 50 years old on the National Register of Historic Places (CFR Section 60.4, Title 36.Chapter I). Furthermore, the structure would not meet the eligibility criteria for listing on the California Register of Historical Resources (CRHR) because it is not associated with events that have made a significant contribution to local, regional, or California history, it is not associated with a person of local or state importance, does not embody a distinct architectural type, period, construction method, or high artistic value, and has not yielded, nor have they the potential to yield information important to local or state. No archaeological materials were observed within the project area during survey efforts.

THRESHOLDS OF SIGNIFICANCE

The project would cause a significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of a unique archaeological resource or a historical resource as defined in 21083.2 of CEQA and 15064.5 of the State CEQA Guidelines, respectively, or
- disturb any human remains, including those interred outside of formal cemeteries.

Section 15064.5 of the State CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings. Section 21083.2 of CEQA defines "unique archaeological resource" as 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 one or more of the following criteria: (1) that it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; (2) that it has a special and particular quality, such as being the oldest of its type or the best available example of its type; or (3) that it is directly associated with a scientifically recognized important prehistoric or historic event or person.

Section 15064.5 of the State CEQA Guidelines defines "historical resource" as a resource (1) listed on, or determined to be eligible by the State Historical Resources Commission for listing on, the CRHR; (2) listed in a local register of historic resources or as a significant resource in a historical resource survey, or (3) considered to be "historically significant" by a lead agency as supported by substantial evidence in the record. Generally, a resource shall be considered by the lead agency to be "historically significant" if it meets any of the criteria for listing in the CRHR.

IMPACT ANALYSIS

IMPACT 4.12-1 Known Archaeological Resources. *Archival and field research has demonstrated that there are no known archaeological resources within the proposed project area. Because there are no known recorded archeological sites, features, or artifacts within the project area, the project's impact on known archeological resources would be* ***less than significant****.*

A records search conducted by the CCIC indicated that several previous cultural resource investigations have been completed within and in the vicinity of the project area. However, none of those studies resulted in the identification of prehistoric or historic-era resources on the project site.

The records search information was supplemented with a field survey performed by Jensen 2006, supplemented by additional sample survey by EDAW (2008). No archaeological resources were identified during the survey. The cultural investigation is consistent with the Resource Conservation Element of the City General Plan. Because there are no known recorded archeological sites, features, or artifacts within the project area, the project's impact on known archeological resources would be **less than significant**.

IMPACT 4.12-2 Known Historic Resources. *Project construction would result in the removal of one residence in the southwest corner of the project area. This building does not appear to be eligible for listing on the CRHR. Because none of the buildings on the project site would be eligible for listing on the CRHR, the project's impact on these properties would be less than significant.*

Historic-era maps depict a building on South Union Avenue, north of Woodward Avenue, however field reconnaissance indicated that the structure had been removed and there is no evidence for the presence of archaeological deposits such as foundation and artifacts that may have been associated with this building. One contemporary residence is present along the north side of Woodward Avenue within the current project; however, this building does not appear to be eligible for inclusion in the CRHR. Therefore, the project's impact on this property would be **less than significant**.

IMPACT 4.12-3 Undiscovered/Unrecorded Archaeological Sites. *Project-related construction activities may uncover or otherwise disturb previously undiscovered or unrecorded archaeological resources. If such resources were to represent "historical resources" or "unique archaeological resources" as defined by CEQA, any substantial change to or destruction of these resources would be a potentially significant impact.*

The potential exists for previously unidentified archaeological sites to be uncovered during preconstruction or construction-related ground disturbing activities. If such resources were to represent "historical resources" or "unique archaeological resources" as defined by CEQA, any substantial change to or destruction of these resources would be a **potentially significant** impact.

IMPACT 4.12-4 Undiscovered/Unrecorded Human Remains. *Project-related construction activities could uncover or otherwise disturb previously undiscovered or unrecorded human remains. Any disturbance of human remains would be a potentially significant impact.*

Although no human remains have been listed or recorded in the project area, project construction activities could uncover previously undiscovered human remains. Any disturbance of human remains would be a **potentially significant** impact.

4.12.4 MITIGATION MEASURES

No mitigation measures are required for the following less-than-significant impacts:

Impact 4.12-1: Known Archaeological Resources.

Impact 4.12-2: Known Historic Resources.

The following mitigation is recommended for potentially significant impacts:

4.12-3: Undiscovered/Unrecorded Archaeological Sites.

At the onset of construction, all construction personnel shall be alerted to the possibility of buried cultural resources and shall be educated as to identification of archaeological artifacts. If artifacts or unusual amounts of stone, bone, or shell or significant quantities of historic-era artifacts are uncovered during construction activities, work within 50 feet of the specific construction site at which the suspected resources have been uncovered shall be suspended, and the project applicant shall be immediately contacted. At that time, the project applicant shall retain a professional archaeologist, who shall conduct a field investigation of the specific site and recommend measures deemed necessary for the protection or recovery of any cultural resources concluded by the archaeologist to represent significant or potentially significant resources as defined by CEQA. These measures could include, but are not limited to, capping, data recovery, or excavation. The project applicant shall implement the measures deemed necessary by the archaeologist before the resumption of construction activities within the area of the find.

4.12-4: Undiscovered/Unrecorded Human Remains.

If human remains are found on the project site, the California Health and Safety Code (HSC) requires that excavation be halted in the immediate area and the county coroner be notified to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (HSC. 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (HSC 7050.5[c]).

The responsibilities of the NAHC for acting on notification of a discovery of Native American human remains are identified in the California PRC, Section 5097.9. The NAHC is responsible for immediately notifying the person it believes is the most likely descendant (MLD) of the Native American whose remains were found. With permission of the legal landowner(s), the MLD may visit the site and make recommendations regarding the treatment and disposition of the human remains and any associated grave goods. The MLD should do this within 24 hours of NAHC notification (PRC 5097.98[a]). If an agreement for treatment of the remains cannot be resolved satisfactorily, any of the parties may request mediation by the NAHC (PRC 5097.94[k]). Should mediation fail, the landowner or the landowner's representative must re-inter the remains and associated items with appropriate dignity on the property in a location not subject to further subsurface disturbance (PRC 5097.98[b]).

4.12.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation measures identified above, the project's impacts on undiscovered/unrecorded archaeological sites and human remains would be reduced to a less-than-significant level, because appropriate measures would be implemented to preserve or record any previously undiscovered resources at the project site.

4.13 POPULATION, EMPLOYMENT, AND HOUSING

In recent years, the City of Manteca has emerged as a regional metropolitan area due in part to its proximity to the Bay Area. The City of Manteca has historically been a prime agricultural center because of its fertile soil, mild climate, and access to clean water. However, the area has been experiencing new trends in development and the area's new and proposed subdivisions are indicative of the area's rapid economic and housing growth. Although the proposed project would not include construction of housing or direct generation of population growth, the proposed project may indirectly affect population growth and housing demand. Therefore, this analysis documents the existing population, employment, and housing conditions in the City of Manteca (City) and San Joaquin County (County) and presents estimates of changes to those conditions that could be created with implementation of the proposed project. This section also characterizes the population, employment, and housing changes that could trigger adverse physical effects in the City or the region.

4.13.1 ENVIRONMENTAL SETTING

POPULATION

From 1990 to 2000, the population of the City of Manteca increased from 40,773 to 49,258, or 20.8% over the 10-year period (U.S. Census Bureau 2000). The current population as of July 1, 2007 is estimated to be 64,038 (California Department of Finance 2007a). Population growth within the City and its sphere of influence is projected to continue; however, estimates of the future population as forecast by different planning processes used by the City and County vary depending on the assumptions used in the projections. Projected population estimates from various sources are presented in Table 4.13-1.

Table 4.13-1
Population Estimates for the City of Manteca

	Projection Year					
	2005	2010	2015	2020	2023	2025
San Joaquin County General Plan	--	89,500	--	--	--	--
San Joaquin Council of Governments	56,875	64,248	71,622	77,699	--	86,370
City General Plan	--	--	--	--	94,378	--

Sources: City of Manteca 2003, County of San Joaquin 1991, SJCOG Research and Forecasting Center 2000.

Some of the variation among population projections is attributable to the age of the projections. For example, the population projections contained in the County General Plan were prepared in 1991. As projections age, unforeseen circumstances typically decrease the accuracy of the projections over time. Additional variation results from projection methods. The San Joaquin Council of Governments (SJCOG) estimates (completed in 2000 by the SJCOG Research and Forecasting Center) were based on extrapolations of historic growth trends and did not account for some of the specific projects planned in the City. Projections included in the City General Plan are based on assumptions relating to residential density, average density, efficiency of land use, vacancy factors, and a market reserve for each residential land use type. The City General Plan has projected an average annual growth rate of 2.7%.

HOUSING

The 2000 U.S. Census Bureau reflects a community with growing housing values, low vacancy, and relatively small households. The housing units in the City have increased from 13,466 in 1990 to 16,937 in 2000 (U.S. Census Bureau 2000). The City's housing growth rate over this 10-year period was nearly 22%. Based on the City General Plan, the number of housing units is anticipated to increase in Manteca to approximately 31,773 by 2023 at full build out of the general plan (City of Manteca 2003).

According to the California Department of Housing and Community Development (HCD), a housing vacancy rate of 5% is considered normal (HCD 2000). Vacancy rates below 5% indicate a housing shortage in a community. The U.S. Census Bureau reports that the City had an estimated vacancy rate of 3.1% for owner-occupied units and 6.5% for rental units between 2005 and 2007 (California Department of Finance 2007b). The County had an estimated vacancy rate of 2.2% for owner-occupied units and 5.8% for rental units between 2005 and 2007 (California Department of Finance 2007c). These vacancy rate estimates generally indicate that both the City and County are currently experience a tight housing market and average rental market.

JOBS-HOUSING BALANCE

The concept of jobs-housing balance presumes that the environment and quality of life in a given area benefit when the area has a balance between its housing supply and employment base. In the broadest sense, the balance of jobs and housing in a metropolitan region is defined as a provision of an adequate supply of housing to house workers employed in a defined geographic area, such as a community, a City, or other subregion. Alternatively, a job/housing balance can be defined as an adequate provision of employment in a defined area that generates enough local workers to fill the housing supply. The opportunity to live close to the workplace afforded by providing housing close to jobs should translate to lower congestion and commute times by eliminating the necessity for long-distance commutes. It also provides increased opportunities to use transit, bike, or walk to work in lieu of driving. An area that has too many jobs relative to its housing supply is likely (in the absence of offsetting factors) to experience substantial in-commuting, relatively rapid escalations in housing prices, and intensified pressure for additional residential development. Conversely, if an area has relatively few jobs in comparison to the number of employed residents, many of the workers are required to commute to jobs outside their area of residence. Commuting results in more traffic congestion, air quality degradation, and noise generation. For the purpose of this analysis, the geographic area is defined as San Joaquin County and the City of Manteca, and the jobs-housing balance is calculated and discussed specifically for each of these areas.

The simplest measure of jobs-housing balance is an index based on the ratio of employed residents (which is influenced by the number of homes) to jobs in the area, with an index of 1.0 indicating a jobs-housing balance. An index below 1.0 indicates that the area has more jobs than employed residents and may suggest that many employees are commuting in from outside the community. An index above 1.0 indicates that the area has more employed residents than jobs and may suggest that many residents are commuting to jobs outside the community. Imbalance is often a result of local land use policy; therefore, long-term job uses and housing in an urban area should eventually equalize with good planning practices, and thus reduce commuting.

It should be noted that jobs-housing indices are more useful for examining the potential for “self-containment” at the regional level than in determining whether this self-sufficiency actually exists in a given community. Balance involves more than matching numbers of housing units and numbers of jobs. Even if communities have a statistical balance between jobs and housing, they are still very likely to experience in-commuting and out-commuting, given the variety and dispersed nature of employment and residential opportunities elsewhere in the region and the high-level of mobility offered by automobiles. Trip-making decisions, including the choice of mode, are based on many factors. In the most rational scenario, mode choice is based on the relative time, cost, and availability of alternative transportation modes. However, mode choice is not simply the result of a rational decision between equally weighed travel tradeoffs. Based on theory and empirical research, perceived cost, household characteristics, and land use also affect mode choice. Additional factors shape the context in which people make trip decisions, including the fact that two-earner households usually work in different locations; frequent job turnover reduces the ability to locate with reference to one’s workplace; and factors other than jobs access, such as quality of schools, housing prices, and access to other amenities influence residential location choices as much or more than proximity to employment.

San Joaquin County

The anticipated trend in the jobs-housing index for San Joaquin County, based primarily on data from the County, is shown in Table 4.13-2.

Table 4.13-2
Jobs-Housing Balance for San Joaquin County

	Year				
	1990	2000	2010	2015	2025
Employment (number of jobs)	182,237 [a]	201,671 [b]	234,430 [b]	250,810 [b]	283,569 [b]
Housing units	166,274 [c]	189,160 [c]	236,422 [b]	262,311 [b]	297,019
Households	158,156 [c]	181,629 [c]	226,965 [b]	251,819 [b]	309,395
Employed residents	214,969 [c]	244,277 [c]	308,672 [4]	342,474 [4]	420,777 [d]
Jobs-Housing Index [e]	1.18	1.22	1.32	1.37	1.48

[a] Source: San Joaquin County 1991.
[b] Source: San Joaquin Council of Governments Research and Forecasting Center 2000.
[c] Source: U.S. Census Bureau 2002.
[d] Assumes estimated number of employees per household would remain at 1.36 through 2025, as projected household size varies between 2.91 and 3.10.
[e] Jobs-Housing Index = employed residents/number of jobs.

As shown in Table 4.13-2, the jobs-housing index for the County has increased from 1.18 in 1990 to an estimated 1.22 in 2000. This indicates that the imbalance between housing (i.e., reflected as employed residents) and jobs in the County increased from 1990 to 2000, with housing growth outpacing employment growth. These indices indicate that San Joaquin County has more employed residents than jobs and that the County supports a net out-commuting population. The jobs-housing index for the County is projected to steadily increase to 1.48 in 2025. These changes in the jobs-housing index indicate that as project development continues in the region, the jobs-housing index would indicate an increasing imbalance between housing and employment and the number of employed residents living in the County would still exceed the number of jobs in the County.

City of Manteca

The anticipated trend in the jobs-housing index for the City of Manteca, based primarily on data from the City and SJCOG, is shown in Table 4.13-3.

As shown in Table 4.13-3, the jobs-housing index for the City has increased from 1.27 in 1990 to an estimated 1.34 in 2000. This indicates that the imbalance between housing (i.e., reflected as employed residents) and jobs in the City increased from 1990 to 2000, with housing growth outpacing employment growth. These indices indicate that the City of Manteca has more employed residents than jobs and that the City supports a net out-commuting population. The jobs-housing index for the City is projected to decrease to 1.24 in 2020. These changes in the jobs-housing index indicate that as project development continues in the region, the jobs-housing index would indicate a slight increase in balance between housing and employment; however, the number of employed residents living in the City would still exceed the number of jobs in the City.

Table 4.13-3
Jobs-Housing Balance for the City of Manteca

	Year				
	1990	2000	2010	2015	2020
Employment (number of jobs)	14,300 [a]	15,393 [c]	23,270 [b]	25,612 [b]	27,954 [b]
Housing units	13,981 [d]	16,937 [d]	21,089 [b]	23,768 [b]	26,786 [b]
Households	13,466 [d]	16,368 [d]	20,245	22,817	25,715
Employed residents	18,179 [d]	20,561 [d]	27,331 [e]	30,803 [e]	34,715 [e]
Jobs-Housing Index [f]	1.27	1.34	1.17	1.20	1.24

[a] Source: City of Manteca 2003.
[b] Source: City of Manteca 2005.
[c] Source: San Joaquin Council of Governments Research and Forecasting Center 2000.
[d] Source: U.S. Census Bureau 2002.
[e] Assumes estimated number of employees per household would remain at 1.35 through 2020 (City of Manteca 2003), as projected household size varies between 2.98 and 3.05.
[f] Jobs-Housing Index = employed residents/number of jobs.

EMPLOYMENT

Employment growth is one of the primary determinants of housing demand. Working-age individuals often will choose a place to live based on employment prospects in the local area. Therefore, employment trends are an important indicator of housing demand. The rate of employment growth, and the types of jobs most likely to be created, would determine how much housing would be needed by type and cost. For example, an economy based on seasonal tourism will generate different housing needs for local workers than economics based on government, education, research, or technology.

According to the U.S. Census Bureau there were 14,300 jobs in the City of Manteca in 1990. In 2000, employment in the City was approximately 20,561 employed residents, with the most prominent occupations in education, health, and social services (San Joaquin Council of Governments Research and Forecasting Center 2000). In San Joaquin County as a whole there were 182,237 jobs in 1990 (San Joaquin County 1991), while in 2000, the number of jobs in the county totaled 201,671 (U.S. Census Bureau 2000).

4.13.2 REGULATORY SETTING

CITY OF MANTECA GENERAL PLAN

The City of Manteca General Plan (City General Plan) includes the following policies related to employment that are relevant to this analysis:

- **Policy ED-P-2:** Designate land in sufficient quantities to provide for a community with adequate jobs for all its residents. The goal of a ratio of jobs to employed residents should be 1 job for each employed resident.
- **Policy ED-P-6:** Expand job opportunities available in Manteca so that residents may choose to work locally instead of commuting.
- **Policy ED-P-7:** Attract and retain a broad base of businesses and industries to provide a variety of jobs allowing career growth potential.

4.13.3 ENVIRONMENTAL IMPACTS

ANALYSIS METHODOLOGY

The examination of population, employment, and housing conditions in this section of the Draft EIR is based on information obtained from review of the plans for the proposed project; review of available population, employment, and housing projections from the City, the County, the U.S. Census Bureau, and other sources; and review of applicable elements and policies from the City General Plan.

The proposed project includes generation of employment opportunities for the City. An approximately 450,000-square-foot commercial retail development on 48.5 acres was assumed (see Chapter 3, "Project Description"). These project components would be constructed in three phases anticipated to begin in summer 2009 with completion expected by winter 2013. The number of jobs generated by the proposed project was calculated using standards for total employees per acre based on land use type. It is assumed for this analysis that one employee would be generated for every 500 square feet of commercial development.

Although the proposed project would not include construction of housing or direct generation of population growth, the proposed project may indirectly affect population growth and housing demand. Specific indirect impacts associated with increased employment in the City, such as traffic congestion, air quality degradation, and noise generation, are addressed in each technical section of this Draft EIR as appropriate. These technical sections provide a detailed analysis of other relevant environmental effects as a result of development of the proposed project; therefore, indirect impacts are not discussed further in this section.

THRESHOLDS OF SIGNIFICANCE

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the proposed project would result in a significant impact. These thresholds of significance are based on the State CEQA Guidelines. A population, employment, and housing impact is considered significant if implementation of the proposed project would do any of the following:

- induce substantial unplanned population growth in an area, either directly (by proposed new homes and businesses) or indirectly (through the extension of roads or other infrastructure);
- generate a substantial demand for new housing, the construction of which could cause significant environmental impacts;
- displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere; or
- result in employment or housing conditions inconsistent with goals, policies, or objectives in the City General Plan.

The proposed project would not include development of new homes; therefore, there would be no direct increases in population growth. In addition, the proposed project would not result in housing conditions inconsistent with goals, policies, or objectives in the City General Plan. Because the project would have no impact on these thresholds, they are not discussed further in this section.

IMPACT ANALYSIS

IMPACT 4.13-1 Population Growth and Housing Demand During Construction. *The proposed project would generate a temporary increase in employment in the City of construction jobs during the peak construction period. The number of existing construction personnel in the region is considered sufficient to meet demand associated with the proposed project; therefore, this temporary increase in employment is not expected to generate any substantial new population growth in the area or generate the need for substantial additional housing for construction workers. This impact is considered* ***less than significant****.*

Project construction activities would occur at intervals throughout the planning horizon of the proposed project. A greater number of construction workers would be employed during peak construction periods (determined by market demand and overall economic conditions), whereas fewer construction workers would be employed during non-peak periods. The proposed project is estimated to generate a maximum of 30 construction jobs. According to the latest labor data available from the U.S. Census Bureau (2000), 2,686 residents in the City and 16,190 residents in the County are employed in the construction industry (U.S. Census Bureau 2002). This existing number of residents in the City and County who are employed in the construction industry would be sufficient to meet the demand for construction workers that would be generated by the proposed project. Because construction workers serving the proposed project can be expected to come from the City itself and from nearby communities in San Joaquin County, substantial population growth or increases in housing demand in the region as a result of these jobs is not anticipated. Furthermore, even if some construction workers from outside the region were employed at the project site, construction workers typically do not change residences when assigned to a new construction site, and substantial permanent relocation of these workers to the area is not anticipated. Therefore, the proposed project would not be expected to generate the need for substantial additional housing in the City during construction. Because of these conditions, the impact related to population growth and housing demand associated with project construction is considered **less than significant**.

IMPACT 4.13-2 Increased Employment Opportunities and Housing Demand. *Development of the proposed project would increase the number of jobs in the City. The jobs-housing indices for the County and City indicate that the number of employed residents living in the County and City exceed the number of jobs, and that there is a net out-commuting population. Given these conditions, jobs generated by the proposed project are expected to be filled in large part by the existing resident labor pool. Because the project is anticipated to generate little or no demand for new housing and would likely bring the regional jobs-housing index closer to a balanced condition, this impact is considered* ***less than significant****.*

The proposed project would develop a 450,000-square-foot commercial development on 48.5 acres. Development of the proposed project would be consistent with the City General Plan's goals and policies related to employment. The project would expand local job opportunities by attracting new commercial businesses to the City (Goal ED-3, Policy ED-P-6, and Policy ED-P-7).

The project is estimated to generate 900 employees by project buildout. Assuming estimated number of employees per household would remain at 1.35 through 2020 (City of Manteca 2003), the employees generated by the proposed project at buildout would require approximately 667 housing units. If these workers do not currently live in the City or County or cannot be accommodated by the existing housing units in the City or County, then new off-site housing units would be needed to meet the housing demand generated by the proposed jobs.

As discussed above in the "Existing Conditions" section, the 2000 jobs-housing index for San Joaquin County and the City of Manteca was 1.22 and 1.34, respectively, indicating an imbalance between housing (i.e., reflected as employed residents) and jobs, with housing growth outpacing employment growth. This index indicates that San Joaquin County and the City of Manteca had more employed residents than jobs in 2000 and that the County supported a net out-commuting population. By 2010, the jobs-housing index for the County and City indicate that the number of employed residents living in the County and City would still exceed the number of jobs (Tables

4.13-2 and 4.13-3). Because the County and City are "housing rich," the number of housing units available should be sufficient to accommodate the employees generated by the proposed project.

In 2010, shortly after buildout of the project, the jobs-housing index is projected to be 1.17, which indicates that there would be approximately 4,061 more employed residents than jobs (Table 4.13-3). If the jobs generated by the proposed project are filled by employed residents in the City, the jobs-housing index would decrease to 1.13, indicating a more balanced condition (Table 4.13-4). Given these conditions, jobs generated by the proposed project are expected to be filled in large part by the existing resident labor pool in the City and region.

Table 4.13-4
Jobs-Housing Balance for the City of Manteca Including the Proposed Project

	Year 2010
Employment (number of jobs)[1]	24,170
Employed residents[2]	27,331
Jobs-Housing Index[3]	1.13

[1] Number of jobs determined by the City of Manteca (2003) for the year 2010 (23,270 jobs) plus jobs generated by the proposed project at buildout (2,208).
[2] Calculated number of employed residents from Table 4.13-3.
[3] Jobs-Housing Index = employed residents/number of jobs.

Because the project is anticipated to generate little or no demand for new housing and would likely bring the regional jobs-housing index closer to a balanced condition, this impact is considered **less than significant**.

IMPACT 4.13-3 Housing Displacement. *Dwelling units in the proposed project area consists mainly of rural residences and associated outbuildings interspersed with agricultural operations. One residence on-site would be removed, and the site would be developed with commercial retail development. In the vicinity of the proposed project, several new residential subdivisions are currently under development or are proceeding through the development entitlement process to the southwest and south of the project site, which would provide sufficient housing opportunities for any residents displaced by the proposed project. This impact is considered* ***less than significant****.*

There are 4 rural residences and associated outbuildings located within the project site. One of the dwelling units would be removed during project development, resulting in housing displacement for these residents. The proposed project would establish a new commercial retail development on 48.5 acres of the 65 acre site. The three residential parcels located in the south and southwestern portion of the site would not be developed. In the vicinity of the proposed project, residential subdivisions are developed to the north, directly across SR 120, and residential subdivisions are currently being constructed to the east. These subdivisions would provide sufficient housing opportunities for any residents displaced by the proposed project. Because the project would not result in the substantial displacement of housing or residents, this impact is considered **less than significant**.

4.13.4 MITIGATION MEASURES

No mitigation measures are necessary for the following less-than-significant employment impacts.

Impact 4.13-1: Population Growth and Housing Demand during Construction.

Impact 4.13-2: Increased Employment Opportunities and Housing Demand.

Impact 4.13-3: Housing Displacement.

4.13.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

All impacts associated with population, employment, and housing would be less than significant. No mitigation measures are required.

5 CUMULATIVE IMPACTS

5.1 INTRODUCTION

This section provides an analysis of overall cumulative impacts of the project taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. The goals of this analysis are to first determine whether the overall long-term impacts of all such projects would be cumulatively significant and second to determine whether the project itself would cause a "cumulatively considerable" (and thus significant) incremental contribution to any such cumulatively significant impacts. (See State CEQA Guidelines Sections 15130[a]-[b], Section 15355[b], Section 15064[h], Section 15065[c]; Communities for a Better Environment v. California Resources Agency [2002] 103 Cal.App.4th 98, 120.) This analysis creates a broad context in which to assess the project's incremental contribution to anticipated cumulative impacts, as viewed on a geographic scale beyond the project site itself, and to determine whether the project's incremental contribution to any significant cumulative impacts is itself significant (i.e., "cumulatively considerable" as defined by CEQA).

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130(a), the discussion of cumulative impacts in this DEIR focuses on significant and potentially significant cumulative impacts. State CEQA Guidelines Section 15130(b), in part, provides the following:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

5.2 PROJECTS CONTRIBUTING TO POTENTIAL CUMULATIVE IMPACTS

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects or the use of adopted projections from a General Plan, other regional planning document, or a certified EIR for such a planning document. For this DEIR, both the list and the plan approach have been combined to generate the most reliable future projections possible. A list approach is used to define the local project environment and includes projects within the City of Manteca. Because the project directly influences and is influenced by regional development activities, the plan approach is also used to allow a cumulative analysis on a regional scale. Projects and plans included in these two approaches are described below.

5.2.1 CUMULATIVE CONTEXT

Agriculture has been the driving force over the decades in the conversion of natural lands in Manteca and the surrounding region. This conversion of natural land removed biological habitat and has resulted in such environmental effects as air quality degradation attributable to dust from cultivation and emissions from farm equipment, as well as water quality degradation from runoff of irrigation water containing traces of pesticides.

This has shifted in recent years to urbanization as the predominant land use driver. According to U.S. Census records, the population in Manteca grew from around 40,800 in 1990 to more than 49,200 in 2000 (U.S. Census Bureau 1990, 2000a). This increase in population has come as a result of moderate urbanization over the decade, particularly the development of single-family residences and commercial and office buildings. Urbanization has also resulted in increased traffic, particularly on increasingly crowded local roadways, increased air pollution from vehicles and construction, and loss of farmland. Even with this growth, however, Manteca accounted for only 9% of the total San Joaquin County population (approximately 563,600 persons) in the year 2000.

San Joaquin County has grown substantially in recent years, particularly in the cities of Tracy and Stockton. Between 1990 and 2000, Tracy grew by more than 23,000 residents and Stockton grew by 33,000 residents. Together, these two cities represent 69% of the County's population gain between 1990 and 2000. In comparison, Manteca's growth equaled 10% of the total County population gain. Growth in Tracy and Stockton has resulted in environmental changes similar to those occurring in Manteca, although at more pronounced levels than in Manteca. The County is addressing numerous regional issues pertaining to severe air quality degradation, traffic congestion, biological habitat loss, loss of farmland, and other urban-related environmental changes.

5.2.2 LIST OF RELATED PROJECTS

The list of past, present, and probable future projects used for this cumulative analysis is restricted to those projects that have occurred or are planned to occur within the city. For the purposes of this discussion, the projects that may have a cumulative effect on the resources in the project area will often be referred to as the "related projects." Related projects are identified in Exhibit 5-1 and Table 5-1; the numbering corresponds to the numbers used in the exhibit and table.

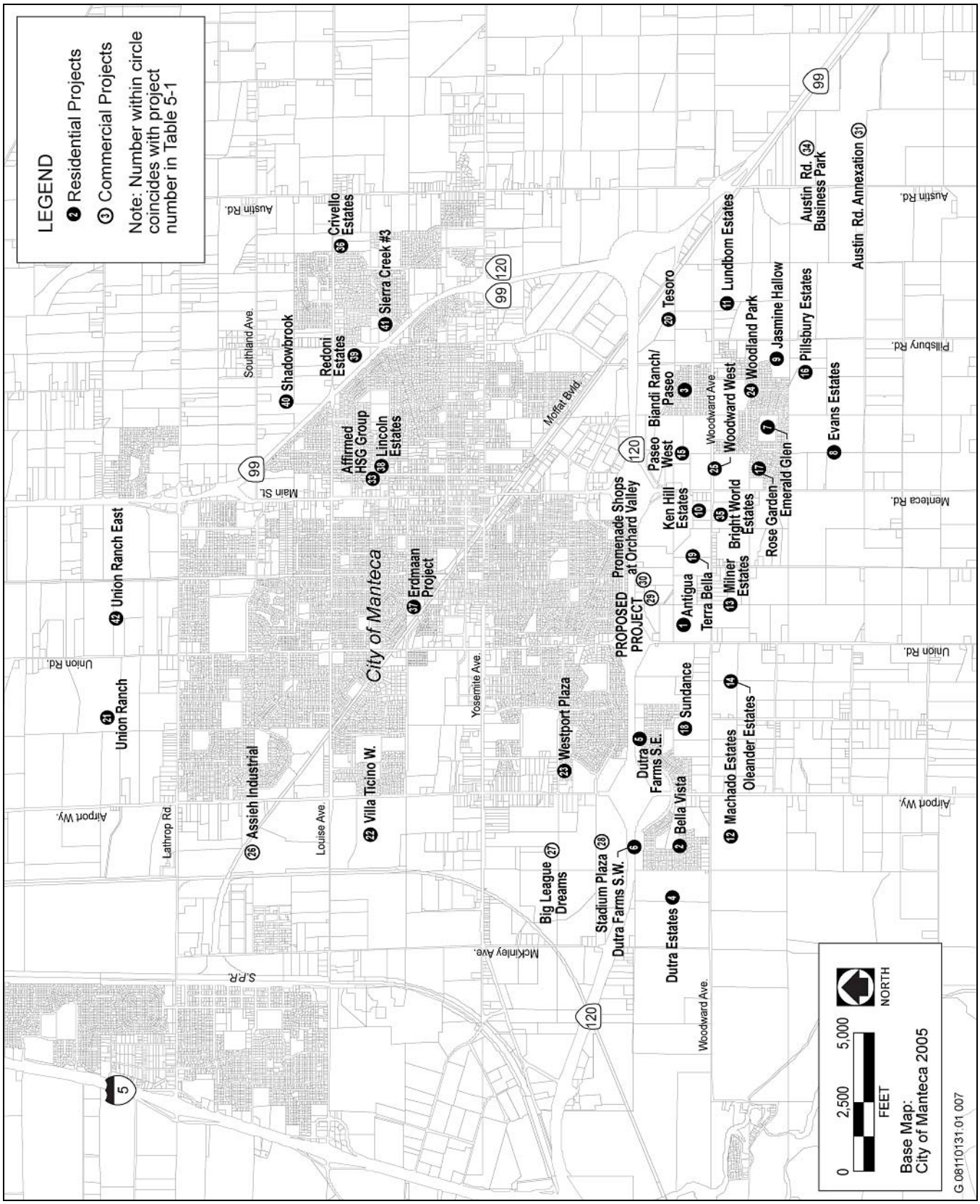
5.2.3 REGIONAL PLANNING ENVIRONMENT

Because the project would directly influence and be influenced by regional development activities, the "plan" approach was used to evaluate cumulative impacts on a regional scale. The regional cumulative analysis area covers San Joaquin County and includes an evaluation of the following plans:

- *San Joaquin County General Plan 2010*, adopted in 1992 and as amended (San Joaquin County 1992);
- *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan* (SJMSCP) (San Joaquin County 2000);
- *Manteca General Plan 2023*, adopted in 1988 and as amended through 2003 (City of Manteca 2003a);
- *Manteca General Plan 2023 DEIR* (City of Manteca 2003b); and
- *2007 Regional Transportation Plan* (San Joaquin Council of Governments [SJCOG] 2007).

Much of the information on the overall planning and project environment in San Joaquin County was found in the SJMSCP, which evaluated current conditions and anticipated future development throughout the County based on the individual City and County General Plan documents listed above. Additional information on conditions in the County was obtained from SJCOG's Research and Forecasting Center (RFC). A summary of the cumulative planning environment in the County used for the regional cumulative impact analysis is provided below.

San Joaquin County covers approximately 909,000 acres with approximately 808,000 acres, or nearly 90% of the County, used or available for agriculture (row and field crops, orchards, vineyards, and grazing lands). The remaining lands are dominated by various types of urban development (approximately 60,000 acres), natural habitats (e.g., woodlands, riparian), and open water (e.g., lakes, rivers, Delta waterways). The County population in the year 2000 was approximately 563,600 (U.S. Census Bureau 2000b) with most County residents and development located in the incorporated cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy.



Source: City of Manteca Community Development Department 2008; EDAW 2009

Location of Related Cumulative Projects **Exhibit 5-1**

Table 5-1
Related Cumulative Projects in the City of Manteca

Project No. in Exhibit 5-1	Project Name	Status	Acreage	Proposed Residential Units/(Acreage)
1	Antigua	Under construction	36	120
2	Bella Vista	Under construction	67	262
3	Bianchi Ranch / Paseo	Built	105	454
4	Dutra Estates	Under construction	77	423
5	Dutra Farms S.E.	Built	105	272
6	Dutra Farms S.W.	Built	61	194
7	Emerald Glen	Built	39	78
8	Evans Estates	In review	159	586
9	Jasmine Hollow	Under construction	61	245
10	Ken Hill Estates	Approved / Not yet building	5	12
11	Lundbom Estates	In review	5	21
12	Machado Estates	In review	160	564
13	Silva/Milner Estates	In review	60	215
14	Oleander Estates	Approved	112	544
15	Paseo West	Under construction	51	191
16	Pillsbury Estates	In review	80	275
17	Rose Garden	Built	48	206
18	Sundance	Approved	110	451
19	Terra Bella	Under construction	42.3	158
20	Tesoro	Under construction	81	492
21	Union Ranch	Under Construction	356	1,922
22	Villa Ticino West	Approved / Not yet building	237	711
23	Westport	Approved / Not yet building	5	24
24	Woodward Park	Built	118	276
25	Woodward West	Built	39	116
26	Assieh Industrial	Under construction	Industrial complex	(79.89)
27	Big League Dreams	Built	Commercial soft ball complex	(45)
28	Stadium Plaza	Under construction	Retail (Kohl's, Old Navy, Chili's etc.)	(54.4)
29	Union Crossing (Proposed Project)	In review	Retail	(65)
30	Promenade Shops at Orchard Valley	In review	Retail	(72)

Table 5-1
Related Cumulative Projects in the City of Manteca

Project No. in Exhibit 5-1	Project Name	Status	Acreage	Proposed Residential Units/(Acreage)
31	Austin Road Business Park	In review	456	3,404
32	Manteca Water Quality Control Facility 2005 Master Plan Treatment Plant and Collection System Expansion*	In review	Public/Quasi Public	(210)
33	Affirmed Hsg Group	Approved	2	1
34	Austin Road Business Park	In review	456	3,404
35	Bright World Estates	In review	5	21
36	Crivello Estates	In review	19	62
37	Erdman Project	Approved	2	8
38	Lincoln Estates	Under construction	4	19
39	Rodoni Estates	Approved	28	99
40	Shadowbrook	Approved	122	497
41	Sierra Creek #3	Approved	34	22
42	Union Ranch East	Under construction	163	294

*This project is not identified on Exhibit 5-1 as improvements would occur throughout the City.
Source: Data provided by the City of Manteca in 2008

As stated in the SJMSCP, it is anticipated that 109,000 acres of various categories of open space lands (e.g., agriculture, natural areas, open space lands) in the County, including the City of Manteca, will be converted to nonopen space uses between the years 2001 and 2051 based on full buildout of each of the general plans in the County and construction of all anticipated transportation and other public projects. In addition, approximately 59,000 acres of infill developments would occur in this 50-year timeframe. Population in the County is also expected to more than double by 2040, increasing to 1.46 million (California Department of Finance 2004).

Residential development constitutes the majority of planned future developed uses in the County. New residential development is expected to occur in four primary areas in the County including incorporated cities (e.g., Escalon, Lathrop, Manteca, Stockton, Tracy), unincorporated areas near cities where services are available, new communities (e.g., Mountain House, New Jerusalem), and existing unincorporated communities (e.g., Acampo, Banta, Chrisman, Glennwood, French Camp, Lockeford, Linden, Thornton, Vernalis). Commercial development would be concentrated in these same areas as well as along major transportation routes (San Joaquin County 2000).

5.3 ANALYSIS OF CUMULATIVE IMPACTS

The following sections contain a discussion of the cumulative effects anticipated from project implementation along with the related projects and regional development for each of the eight environmental issue areas evaluated in this DEIR. The analysis conforms with Section 15130 of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project alone."

5.3.1 LAND USE

As described in Section 4.1 of this DEIR, implementation of the project would not physically divide a community. Impacts involving land use plans or policies and zoning generally would not combine to result in cumulative impacts. The determination of significance for impacts related to these issues, as considered in Appendix G of the State CEQA Guidelines, is whether a project would conflict with any applicable land use plan or policy adopted for the purpose of reducing or avoiding environmental impacts. Such a conflict is site specific; it is addressed on a project-by-project basis. As described in Section 4.1, implementation of the project would not result in significant land use planning impacts, and the project's ultimate consistency with City land use plans, policies, and zoning is ensured through entitlements to revise the City General Plan and Zoning Ordinance. Because no land use impacts would occur on a project-specific basis, the project would not contribute to any potential cumulative land use impacts.

5.3.2 VISUAL

Past and current development in the vicinity of the project has increasingly changed the visual character along State Route (SR) 120 and South Union Road from agricultural and open space uses to urban uses, thus altering and limiting the views available to motorists on these roadways. This trend would continue as future projects are implemented in the region, and the project would contribute to this cumulative change in views. As development proceeds in the project region as a whole, substantial changes in visual conditions would continue as agricultural lands and open space are replaced by urban development. Increased urban development would also lead to increased nighttime light and glare in the region and more limited views of the night sky. The cumulative effect of these changes on aesthetic resources from past and planned future projects, as well as the contribution from the project, is considered significant. Although these cumulative impacts can be minimized to a degree through vegetative and topographic screening of structures, use of outdoor lighting that limits glare, appropriate building design, and other measures, the significant cumulative impact cannot be fully mitigated. Therefore, the cumulative change of agricultural and open space views in the project region to urban land uses and the associated increase in nighttime light and glare are considered significant and unavoidable impacts. In addition, the project's incremental contribution to these impacts is cumulatively considerable.

5.3.3 AIR QUALITY

The GAMAQI suggests evaluating the cumulative impacts associated with construction-related precursors and PM_{10} emissions, odors, localized CO impacts, hazardous air pollutants, and operational precursors and PM_{10} emissions. These air quality impacts have been analyzed at the project level in Section 4.3, "Air Quality," Impacts 4.3-1 through 4.3-5 and are analyzed below in a cumulative context.

Construction Emissions

Ozone Precursor Emissions

As shown in Table 4.3-3, construction-related emissions of ROG and NO_X would not exceed the SJVAPCD thresholds of significance. Therefore, construction-related precursor emissions would not conflict with or obstruct implementation of the applicable air quality plan or contribute substantially to an existing or projected air quality violation and would not result in a cumulatively considerable impact.

PM_{10} Emissions

As shown in Table 4.3-3, construction-related emissions of PM_{10} would not exceed the SJVAPCD thresholds of significance. However, due to the mitigation measures (i.e., SJVAPCD Regulation VIII) necessary to reduce construction-related PM_{10} impacts to a less-than-significant level not being part of the project description, construction-related PM_{10} impacts would be significant without mitigation. Implementation of Mitigation

Measure 4.3-1 would reduce construction-related PM_{10} emissions to a less-than-significant level. Therefore, construction-related PM_{10} emissions would not exceed the SJVAPCD threshold of significance and would be considered less-than-significant by the SJVPACD. Thus, construction-related PM_{10} emissions would not conflict or obstruct implementation of the applicable air quality plan or contribute substantially to an existing or projected air quality violation and would not result in a cumulatively considerable impact. For future development projects, assuming all related projects plus other development in the air basin also implement all feasible construction emission control measures consistent with San Joaquin Valley Air Pollution Control District (SJVAPCD) Guidelines (SJVAPCD 2002), construction emissions on a project-by-project basis could reduce to a less-than-significant level.

Odors

While there is a potential for odors to occur at the project site, compliance with industry standard odor control practices and SJVAPCD Rule 4102 (Nuisance) would limit potential odor impacts. Project and cumulative odor impacts would be less than significant.

Localized CO Concentrations

With mitigation in place, the project would not result in the operation of any intersections at unacceptable LOS levels (i.e., LOS E or F). As a result, the project would not contribute to CO concentrations that exceed the CAAQS of 9.0 ppm for the 8-hour standard or 20 ppm for the 1-hour standard. Therefore, the project's contribution to localized mobile- source CO concentrations at sensitive receptors would be less than significant and would not considerably contribute to any cumulative mobile source CO impacts.

Hazardous Air Pollutants

The HRA performed to analyze the levels of health risk associated with operational TAC emissions determined that the maximum increase in cancer risk at a nearby sensitive receptor would be 2.3 in 1 million and the maximum increase in noncancer chronic risk level would be a HI of 0.00001. Respectively, these levels of increased risk do not exceed SJVAPCD's threshold of 10 in 1 million for increased cancer risk or an HI of 1 for increased noncarcinogenic chronic risk. Based on an analysis of potential sources of toxic air emissions in the area, the project's contribution to health risk at nearby sensitive receptors is not cumulatively considerable.

Operational Emissions

The project's operational emissions would be anticipated to exceed SJVAPCD's significance thresholds for ROG and NO_X (10 tpy) even with compliance to SJVAPCD's Rule 9510, as shown in Table 4.3-4. Emissions attributable to project implementation, along with emissions from other reasonably foreseeable future projects in the SJVAB as a whole, would continue to contribute to long-term increases in emissions that would exacerbate existing and projected nonattainment conditions. As a result, emissions of precursors and PM_{10} would result in a cumulatively considerable net increase in San Joaquin County which is in nonattainment under applicable ambient air quality standards. This Draft EIR recommends implementation of Mitigation Measure 4.3-2 and Mitigation Measure 5-1, which would require the project applicant to incorporate feasible emission control measures into the project design and operation to reduce long-term regional air pollutant emissions. However, implementation of these mitigation measures would not reduce this impact to a less-than-significant level and the project's incremental contribution with respect to operational emissions would remain cumulatively significant and unavoidable.

5.3.4 GLOBAL CLIMATE CHANGE

IMPACT 5-1 **Substantial Contribution of Greenhouse Gas Emissions.** *Construction- and operation-related activities of the proposed project would result in a net increase in GHG emissions. The construction GHG emissions would be less than a level generally viewed as considerable and therefore they would not be significant. The increase from operations would be above levels generally determined to be considerable and would conflict with the state's AB 32 goals, which require reductions in statewide emissions levels of GHGs. The project's GHG emissions would contribute to the cumulative impact that is global climate change. As a result, this impact would be considered* ***significant****.*

Construction- and operation-related emissions of CO_2 associated with implementation of the proposed project were estimated using URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008), which is designed to model construction and operational emissions for land use development projects. Construction emissions were estimated based on default parameters of the URBEMIS 2007 model and SJVAPCD-recommended parameters for composition of the construction equipment fleet, ground disturbance acreage, worker trips, and material haul trips (SJVAPCD 2007). The URBEMIS 2007 model does not account for CO_2 emissions associated with the production of concrete or other building materials used in project construction. Operation-related emissions were estimated based on the proposed land uses type and size, vehicle trip information from the traffic analysis prepared for this project (Fehr & Peers 2008), Section 4.11 "Transportation and Circulation", and SJVAPCD's recommended standard changes to URBEMIS Default Values (SJVAPCD 2007x). In addition, indirect-source GHG emissions were estimated using the California Climate Action Registry Protocol, Version 3.0 (CCAR 2008). Modeled construction and operational emissions of CO_2 are summarized in Tables 5-2 and 5-3, respectively.

Table 5-2
Summary of Modeled Construction Emissions of Greenhouse Gases [1]

Source	Annual Mass CO_2 Emissions (metric tons)[1]
Construction Emissions [2]	
Mass Site Grading (2009)	292
Phase 1 Northern Retail Site (2009)	297
Phase 1 Northern Retail Site (2010)	170
Phase 2 Central Retail Site (2010)	264
Phase 2 Central Retail Site (2011)	365
Phase 3 Southern Retail Site (2012)	270
Total Construction Emissions (2009-2013)	1,657

[1] The values presented do not include the full life-cycle of GHG emissions that occur over the production/transport of materials used during construction of the project, solid waste that occurs over the life of the project, and the end-of-life of the materials and processes that indirectly result from the project. Estimation of the GHG emissions associated with these processes would be speculative and would require analysis beyond the current state of the art in impact assessment, and may lead to a false or misleading level of precision in reporting of project-related GHG emissions. Further, indirect emissions associated with in-state energy production and management of solid waste would be regulated under AB 32 directly at the source or facility that would handle these processes. The emissions associated with off-site facilities in California would be closely controlled, reported, capped and traded under AB 32 and ARB programs. Therefore, it is assumed that GHG emissions associated with these life-cycle stages would be consistent with AB 32 requirements.

[2] Construction emissions were modeled with the URBEMIS 2007 computer model using the same assumptions and input parameters to estimate Criteria Air Pollutant emissions for Table 4.3-3. The URBEMIS 2007 model does not account for CO_2 emissions associated with the production of concrete or other building materials used in project construction. It also does not estimate GHG emissions other than CO_2, such as CH_4 and N_2O, as these levels are expected to be nominal in comparison to the estimated CO_2 levels despite their higher global warming potential.

See Appendix C for detailed model input, assumptions, and threshold calculations.

Source: Modeling conducted by EDAW 2008

Table 5-3
Summary of Modeled Operational Emissions of Greenhouse Gases [1]

Source	Annual Mass CO_2 Emissions (metric tons)[1]
Operational Emissions (Year 2013) [1]	
Area Sources [2]	864
Mobile Source [3]	13,983
Electricity Consumption [2,4,5]	2,755
Water Consumption [4,6,7]	62
Total Operational Emissions	17,664

[1] Direct operational emissions (i.e., area and mobile sources) were modeled using the URBEMIS 2007 computer model, based on trip generation rates obtained from the traffic analysis, as well as the same assumptions and input parameters to estimate criteria air pollutant emissions for Table 4.3-4. URBEMIS also does not estimate GHG emissions other than CO_2, such as CH_4 and NO_2, as the emission levels of these pollutants are expected to be nominal in comparison to the estimated CO_2 levels despite their higher global warming potential.

[2] Quantification of area sources and electricity consumption do not account for the GHG emission reductions associated with the implementation of pertinent future regulations (e.g., SB 107 and SB 1368).

[3] Indirect operational GHG emissions associated with electricity consumption were estimated using the methodologies of the *California Climate Action Registry General Reporting Protocol, Version 3.0* (CCAR 2008). The CCAR Protocol includes factors for calculating CH_4 and N_2O emissions, which are weighted by their respective GWP and summed with CO_2 to yield carbon dioxide equivalent (CO_2e). Electricity consumption emissions shown are weighted for CH_4 and N_2O; however, due to the nominal contribution of those GHG emissions (despite their high GWP), all emissions are reported as CO_2.

[4] Electricity consumption associated with operation of the proposed project was estimated from commercial electricity consumption rates from California Energy Commission (CEC). Detailed calculations are shown in Appendix C.

[5] Water consumption associated with the proposed project was estimated using retail water consumption rates from a California-based water study (Gleick 2003).

See Appendix C for detailed model input, assumptions, and threshold calculations.

Source: Modeling conducted by EDAW 2008

Construction-generated and operational GHG emissions are discussed separately below.

Construction-Generated GHG Emissions

While any increase in GHG emissions would add to the quantity of emissions that contribute to global climate change, it is noteworthy that emissions associated with construction of the proposed project would occur over a finite period of time. Following full buildout of the project site, all construction emissions would cease. Therefore, the incremental contribution to climate change by the project's construction emissions would be nominal relative to the project's lifetime operational emissions.

To establish additional context in which to consider the order of magnitude of project-generated construction GHG emissions, it may be noted that facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of CO_2 per year are mandated to report their GHG emissions to ARB pursuant to AB 32 and that facilities that generate more than 10,000 metric tons of CO_2 per year will be eligible to participate in the California's GHG cap and trade program. As shown in Table 4.3-5, estimated GHG emissions associated with construction of the entire project would be approximately 1,657 metric tons of CO_2 over a 4-year period. Absent of any air quality regulatory agency-adopted significance threshold for construction-generated GHG emissions, it is notable that the proposed action would generate substantially fewer emissions than 25,000 and 10,000 metric tons CO_2 per year. This information is presented for informational purposes, and it is not the intention of SJVAPCD or the City of Manteca to adopt 25,000 or 10,000 metric tons CO_2 per year as a numeric threshold. Rather, the intention is to put project-generated GHG emissions in the appropriate statewide context in

order to evaluate whether the project's contribution to the global impact of climate change would be considered substantial. Because construction-related emissions would be temporary and finite in nature, and below the minimum standard for reporting requirements under AB 32, the project's construction-related GHG emissions would not be cumulatively considerable, and therefore, **less than significant**.

Operational GHG Emissions

Operational GHG emissions would be generated by area and mobile sources over the lifetime the project. Area-source GHG emissions would be associated with natural gas combustion for space and water heating, maintenance of landscaping and grounds, waste disposal, and other sources. Mobile-source GHG emissions would be generated by project-related vehicle trips for employees and customers of the proposed project. In addition, indirect operational emissions would be generated by electricity consumption (for lighting, appliances, and water conveyance). Table 5-3 above presents the annual GHG operational emissions associated with the proposed project at full buildout.

As shown above in Table 5-3, a majority (79%) of the operational GHG emissions would be generated by mobile sources. With regard to mobile sources, a number of state-wide emission reduction programs will ultimately reduce mobile-source GHG emissions associated with operation of proposed project and from all mobile-sources in the State. The emission rates used for the estimation of mobile-source GHG emissions do not account for GHG reductions that would result from the Low Carbon Fuel Standard, which was adopted as a discrete early action measure of AB 32 (but not yet implemented), or the Clean Air Act (CAA) waiver California is seeking from EPA to adopt more stringent fuel efficiency standards for passenger vehicles and light trucks (AB 1493) in the State. It is expected that the Low Carbon Fuel Standard and potential adoption of more stringent fuel efficiency standards would reduce future long-term mobile source emissions (i.e., passenger vehicles) associated with the project.

Furthermore, the estimate of GHG emissions associated with electricity consumption in Table 5-3 does not account for reductions that also are expected to eventually be caused by regulatory changes. This estimate is also not discounted to reflect the alternative energy mandate of SB 107, which requires electric utilities to provide a minimum 20% of its electricity supply from renewable sources by 2010, a mandate that would be fully implemented by the first operational year of the Phase I. Moreover, it does not reflect Governor Schwarzenegger signing of Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020. In addition, SB 1368 requires more stringent emissions performance standards for new power plants, both in-state and out-of-state, that supply electricity to California consumers. Thus, these regulations will further reduce GHG emissions associated with electricity consumption.

By adoption of AB 32, California has identified that global climate change is a serious environmental issue, and has identified GHG reduction goals. However, with regard to emissions of GHGs, no air district in California, including SJVAPCD, nor ARB has established a significance threshold for analyzing project-generated GHG emissions or a methodology for analyzing air quality impacts related to global warming. Nonetheless, at the time of writing this EIR, multiple government agencies in California are examining how GHG emissions from land use development projects should be evaluated and mitigated, including the California Attorney General's (AG) Office, the State Office of Planning and Research (OPR), and ARB. The AG's Office has published a list of measures for reducing GHG emissions from land use development projects (California Attorney General's Office 2008), which is included in Appendix C.

Pursuant to SB 97, OPR is developing guidelines for the feasible mitigation of GHG emissions. In June 2008, OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, and water usage and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible (OPR 2008). OPR's guidance states that mitigation measures may include alternative project designs or locations that conserve energy and water, measures that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, measures that contribute to

established regional or programmatic mitigation strategies, and measures that sequester carbon to offset the emissions from a proposed project. OPR's guidance also states that a lead agency must impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant level. (In January 2009, OPR released preliminary guidelines as required by SB 97; because they are preliminary and subject to change, they are not addressed herein.) In response to a request from OPR, ARB has developed draft interim performance standards for determining whether land use development projects would cause a significant impact with respect to GHG emissions (ARB 2008). At the time of writing this EIR, these performance standards are in the preliminary stages of development and are not necessarily the standards that will be promulgated for the evaluation of future projects.

Although the mitigation measures and performance standards published by the AG's Office, OPR, and ARB discussed above are not significance thresholds, per say, they provide a general approach for assessing the impacts of operational GHG emissions generated by land use development projects. Thus, projects designed to be consistent with these recommendations would be considered to have a less-than-significant impact on climate change.

The substantial number of vehicle trips generated by the proposed project, which accounts for 79% of the total operational GHG emissions, would not be consistent with the approach to land use development recommended by the regulatory agencies' guidance discussed above. The list of transportation-related mitigation measures recommended by the AG's Office and OPR focus on the minimization of VMT through pedestrian- and bicycle-linked development, providing access to the project through public transit, development of infill projects, and project design features that discourage the generation of passenger vehicle trips. Furthermore, ARB's draft interim performance standards for commercial developments require commercial and retail land uses to be located in close proximity to high-density residential neighborhoods and be well-connected with other neighborhood services. The siting of the proposed project near SR 120, thereby providing easy access to a regional roadway and, more particularly, the lack of connection to public transit and lack of pedestrian- and bicycle-friendly features on and around the site would not encourage alternative transportation. Furthermore, the project would provide a total of 2,027 free vehicle parking spaces, which facilitates easy automobile use, but does not include areas for secure bicycle parking. Therefore, the proposed project does not include substantial design features that would minimize regional VMT and associated mobile-source GHG emissions.

The recommended guidance from the AG, OPR, and ARB also provide measures for the GHG- and energy-efficient operation of new buildings (e.g., solar panels, water-efficient landscaping, use of natural lighting); however, the proposed project would not incorporate a substantial number of these measures. As a result, the project's cumulative contribution to global climate change would be considered **significant**.

Mitigation Measure 5-1: Substantial Contribution of Greenhouse Gas Emissions.

The following mitigation measures would help reduce the GHG emissions associated with the day-to-day activities of the proposed project. It should be noted that some of the mitigation measures to reduce GHG emissions would also help reduce CAP emissions. Conversely, the mitigation measures listed under Mitigation Measure 4.3-2 for criteria air pollutants and ozone precursors will also reduce GHG emissions from mobile and area sources. Implementation of Mitigation Measure 5-1 would result in reductions of GHG emissions; however, at the time of writing this EIR these reductions cannot be fully quantified. While implementation of these mitigations may not reduce Impact 5-1 to a less-than-significant level, implementation of the following mitigations are still required as a condition of project approval:

- Implement all mitigation measures listed above in Mitigation Measure 4.3-2, which will have the added benefit of reducing project-generated, operation-related GHG emissions.

- Design buildings to exceed 2008 Title 24 energy efficiency standards by a minimum of 20%. This mitigation measure is consistent with the City of Manteca's General Plan Policy AQ-P-10, which encourages energy

efficient building designs. In addition, this measure is consistent with the Measures 14 and 15 from SJVAPCD's list of ISR On-Site Emission Reduction Mitigation Measure for commercial uses (SJVAPCD 2007).

- Ensure that all appliances installed in all retail and commercial buildings on the project site are ENERGY STAR qualified. This mitigation measure is consistent with the City of Manteca's General Plan Policy AQ-P-10, which encourages energy efficient building designs.

- Install energy efficient lighting (e.g., "Smart Lighting" [bi-level sensor LED]) in the parking lot and along on-site pedestrian walkways.

- All hot water for proposed businesses should be supplied from solar water heaters and/or tankless water heaters. This mitigation measure is consistent with the City of Manteca's General Plan Policy AQ-P-10 to encourage energy efficient building designs.

- Provide water efficient landscape irrigation design to reduce the outdoor use of potable water by a minimum of 50% beyond that of the established water budget, where the established water budget for landscape irrigation is consistent with the Department of Water Resources' Model Water Efficient Landscape Ordinance. If desired, measures to achieve a 50% reduction may include, but are not limited to the installation and use of rooftop rain collection cisterns or other water collection devices that store rainwater or storm water for landscape irrigation, or the use of gray water produced on site. This mitigation measure is consistent with City of Manteca's General Plan Water Conservation Goal RC-2 to recycle water for irrigation and non-potable uses. The Applicant shall provide a plan for achieving this performance standard when submitting its building plans to the City. The City shall review whether the plan to meet this water conservation performance standard is consistent with the methods outlined in the Department of Water Resources' Model Water Efficient Landscape Ordinance.

- Minimize the use of water, including the use of pressure washers, for regular maintenance of parking lot, walkway, and store front areas. Pressure washing of buildings and surfaces shall not be performed more than once each year. The Applicant shall include this requirement in the commercial lease agreements for every tenant on the project site.

Implementation of Mitigation Measure 5-1 would result in reductions of GHG emissions; however, as stated above, at the time of writing this EIR these reductions cannot be fully quantified. Thus, the net increase in GHG emissions resulting from the project may still be considered substantial. Because the project would potentially still result in a net increase in CO_2 emission levels and conflict with the state's AB 32 goals, this impact would be remain significant and unavoidable.

5.3.5 NOISE

Construction activities occurring during daytime hours are exempt from the provisions of the City's noise ordinance if all construction equipment is fitted with factory installed muffling devices and maintained in good working order. The noise impact analysis conducted in this DEIR (see Section 4.4, Noise) determined that adherence to these noise regulations and implementation of Mitigation Measure 4.4-1 would reduce construction noise impacts; however, there would still be an increase in ambient noise level at nearby rural residential uses. This impact would remain significant and unavoidable. Construction noise sources associated with related projects would also be considered exempt during daytime hours, but there is no guarantee that all construction equipment associated with related projects would incorporate similar noise restricting devices. Therefore, cumulatively significant noise impacts associated with construction noise sources could occur, and the project's contribution would be considerable.

Stationary noise associated with the project and related projects could potentially result in exceeding the City's noise regulations at sensitive receptors. Noise originating from stationary noise sources associated with the related projects could be controlled at the source (e.g., noise walls, enclosures), but there is no guarantee that all related projects would incorporate noise reduction design features. Therefore, cumulatively significant noise impacts associated with stationary noise sources could occur. For the project, some off-site receptors could experience noise levels in excess of applicable standards associated with the proposed commercial uses, even with implementation of all feasible mitigation. Therefore, the project would result in a cumulatively considerable contribution to significant and unavoidable stationary noise impacts after mitigation (see Mitigation Measure 4.4-3: Long-Term Project-Generated Operation-Related Noise Levels from Stationary Sources at Existing Noise-Sensitive Receptors).

Transportation related noise has the potential to extend beyond the project site along existing and proposed off-site roadways, and result in traffic noise impacts to sensitive uses along these roadways. However, as described under Impact 4.4-2 (Long-Term Project-Generated Operation-Related Noise Levels from Traffic at Existing Noise-Sensitive Receptors), project implementation would not result in significant long-term traffic-generated noise impacts under existing plus project conditions. In addition, noise barriers 8 to 10 feet in height are located along Atherton Road and Union Road to shield future traffic noise levels from sensitive receptors, therefore mitigating significant increases in project-related traffic noise along these roadways to less than significant. However, because buildout of the area would result in a perceptible increase in traffic noise on roadway segments in the project study area, there would still be a significant cumulative traffic noise impact. Construction of sound walls and other noise-attenuating features (e.g., berms, dual-pane windows) throughout the area and region would require either a regional program or implementation on a project-by-project basis and may not be feasible to implement in all instances. Because it may be infeasible to sufficiently reduce noise at all existing and proposed sensitive receptors that could be affected, this cumulative traffic noise impact is considered significant and unavoidable. Project-related traffic noise impacts would be reduced to less than significant; therefore, the project's incremental contribution would not be considerable and would be less than significant.

5.3.6 BIOLOGICAL RESOURCES

Most of the native vegetation in the project area and the larger region has been lost over the past 150 years, primarily as a result of conversion to agricultural and urban land uses. This habitat conversion has substantially affected numerous plant and wildlife species, resulting in various species being listed as threatened or endangered under the California and federal Endangered Species Acts; although, some species that use agricultural habitats and others that can thrive in developed areas have benefited. Future conversions of open space lands in San Joaquin County would primarily consist of converting agricultural lands to residential and urban development.

The SJMSCP anticipates conversion of up to approximately 109,000 acres of open space land to nonopen space uses in the County between 2001 and 2051. The proposed project and related projects in the city would contribute to this countywide conversion. The SJMSCP was developed to minimize and mitigate impacts on plant and wildlife habitat (and associated species) resulting from this regional loss of open space lands. The SJMSCP relies, in part, on compensation for such conversion through preservation of agricultural lands and preservation and creation of natural habitats to be managed in perpetuity through the establishment of conservation easements and preserves. The goal of the SJMSCP is to provide approximately 101,000 acres of agricultural and habitat preserve; the SJMSCP concludes that this would adequately compensate for cumulative impacts on plant and wildlife species covered by the plan. Because the SJMSCP potentially provides a streamlined mechanism to mitigate for impacts on resources covered under the plan, it is assumed that most qualifying projects within the County would use the SJMSCP for mitigation. Therefore, cumulative impacts on terrestrial biological resources covered under the SJMSCP are considered less than significant.

Biological impacts resulting from the proposed project that are not expected to be compensated for by coverage under the SJMSCP are the loss of protected trees. Mitigation measure 4.5-4 would fully compensate for the loss of protected trees. It is assumed that mitigation requirements would be applied to all related projects that may

affect protected trees; therefore, no cumulative net loss of protected trees should occur. Potential cumulative impacts on protected trees are considered less than significant.

Because the project applicant would participate in the SJMSCP and would implement mitigation measures to compensate for loss of protected trees, the proposed project and related projects would result in less-than-significant cumulative impacts on biological resources.

5.3.7 HAZARDS AND HAZARDOUS MATERIALS

The project and related projects would all involve the storage, use, disposal, and transport of hazardous materials to varying degrees during construction and operation. Impacts related to these activities are considered less than significant under the project because the storage, use, disposal, and transport of hazardous materials are extensively regulated by various federal, state, and local agencies, and it is assumed that related projects would comply with these existing hazardous materials regulations. Mitigation outlined in Section 4.6, Hazards and Hazardous Materials, would reduce potential safety hazards for construction workers and residents. Therefore, significant hazards to the public would not occur. Because these laws and regulations would also apply to each related project, this impact would be considered less than significant on both an individual project and cumulative basis.

5.3.8 GEOLOGY, SOILS, SEISMICITY, AND PALEONTOLOGICAL RESOURCES

Various areas in the city of Manteca and the project region are subject to ground shaking, liquefaction, lateral spreading, settlement, levee failure, and other seismically induced hazards. Although the City is located in an area of low seismic activity, faults in the greater San Joaquin Valley could cause moderate ground shaking throughout the region. Implementation of the various related projects could expose additional structures and people to seismic hazards. The potential seismic and soil hazards in the city of Manteca, therefore, could represent a significant cumulative impact if projects are not developed to the latest building standards and do not incorporate recommendations from site-specific geotechnical reports and grading/erosion plans prepared for these projects.

As discussed in Section 4.7, Geology, Soils, and Seismicity, the project site would be exposed to potentially significant seismic hazard impacts. However, these impacts would be mitigated to less-than-significant levels through completion of site-specific geotechnical studies and implementation of construction and design measures developed in response to the studies. Each of the related projects must individually meet building code requirements, and no additive effect would result from the combination of the related projects and the project. Implementation of the project, therefore, would not create additional facilities under increased risk of hazards and would not result in any cumulatively considerable incremental contributions to any significant cumulative impacts. This would be a less-than-significant cumulative impact.

5.3.9 AGRICULTURAL RESOURCES

Implementation of the proposed project would contribute incrementally to the cumulative conversion of Important Farmland to nonagricultural use in San Joaquin County. The incremental contribution of the project would be cumulatively significant.

Most of the land in San Joaquin County is in agricultural production. In the year 2006, San Joaquin County had a total of 620,070 acres of Important Farmland (FMMP 2006). Between the years 1994 and 2006, the total amount of Important Farmland in San Joaquin County decreased by 15,027 acres or approximately 2 percent (see Table 5-4). Prime Farmland and Farmland of Statewide Importance has decreased by 26,867 acres and 9,875 acres, respectively, since the year 1994. Designation of new areas as Unique Farmland and Farmland of Local Importance has resulted in net increases of 16,025 acres and 5,690 acres in these categories of farmland, respectively, since the year 1994.

Table 5-4 Acreages of Important Farmland in San Joaquin County						
Land Use Category	1994	1996	1998	2000	2004	2006
Prime Farmland	434,476	433,134	429,168	419,227	412,550	407,609
Farmland of Statewide Importance	99,148	98,148	96,795	93,739	91,222	89,273
Unique Farmland	47,206	48,759	52,715	59,118	62,535	63,231
Farmland of Local Importance	54,267	53,479	53,682	58,906	57,808	59,957
Total	635,097	633,535	632,360	626,402	624,115	620,070
Sources: FMMP 2006						

The population of the City of Manteca has increased from 40,773 residents in the year 1990 to 49,258 residents in the year 2000 which equates to a net change of approximately 21% (City of Manteca 2003b). Population growth in both the City of Manteca and San Joaquin County as a whole is expected to continue in the future, as shown in Table 5-5, putting continued pressure on agricultural lands for conversion.

With or without implementation of the project, the trend of land conversion from agricultural uses to urban and other nonagricultural uses (including wildlife habitat enhancement) in the Central Valley would continue. In San Joaquin County, the acreage of remaining Important Farmland is expected to substantially decrease from approximately 630,000 in the year 2000 to 520,000 in the year 2040 and 270,000 in the year 2080 as a result of urbanization (San Joaquin County 2000).

Table 5-5 Population Projections for the City of Manteca and San Joaquin County		
Year	City of Manteca	San Joaquin County
2000	49,500	566,600
2005	56,874	633,348
2010	64,248	700,095
2015	71,622	766,843
2020	77,699	821,851
2025	86,370	900,338
Source: City of Manteca 2003b		

It is likely that other future projects would convert agricultural lands to nonagricultural uses. These agricultural lands may or may not be designated Important Farmland and/or be under Williamson Act contracts. As most of these future projects are not yet in the environmental planning stage, the acreage of Important Farmland that could be converted by these projects is not known. However, it can be expected from various projections that the acreage of Important Farmland in San Joaquin County will decline. The project would contribute incrementally to this decline.

The permanent conversion of 52.4 acres of Important Farmland at the project site to nonagricultural use is considered a cumulatively considerable (i.e., significant) impact when considered in connection with the significant cumulative losses that will occur as a result of the project, past farmland conversions, and planned future development in the city, the surrounding cities, and San Joaquin County as a whole. Further, because of the extension of infrastructure to previously undeveloped areas and the expansion of the urban core of the City, the

project could increase pressures for urbanization of areas south of the project site and could result in the permanent conversion of additional areas previously devoted to agriculture to urban land uses. The project applicant would pay the agricultural mitigation fee to the City to help offset the conversion of Important Farmland. The City would use these fees to purchase conservation easements on agricultural lands and/or farmland deed restrictions, providing greater protection to these farmlands in the County. However, implementation of this measure would not fully mitigate the project's cumulatively considerable contribution to the loss of agricultural land in San Joaquin County; therefore, cumulative impacts would be significant and the project's incremental contribution would be considerable.

5.3.10 HYDROLOGY AND WATER QUALITY

SURFACE WATER QUALITY

Construction activities at the project site would be extensive. Grading, earth moving, excavation and utility installation, infrastructure development, and building construction would disturb the existing vegetative cover, soil, and drainage systems. Construction activities could result in substantial soil erosion and stormwater discharges of suspended solids, increased turbidity, and potential mobilization of other pollutants from project construction sites as contaminated runoff or direct discharges to drainage channels. Implementation of Mitigation Measure 4.9-1, which requires the project applicant to prepare and implement a stormwater pollution prevention plan (SWPPP) and comply with the Central Valley Regional Water Quality Control Board (RWQCB) requirements to protect water quality, would reduce construction-related water quality effects to less-than-significant levels. While there are no assurances that related projects would incorporate the same degree or mitigation methods as the proposed project, each related project greater than 1 acre in size that would discharge stormwater runoff would be required to comply with National Pollutant Discharge Elimination System (NPDES) discharge permits from the RWQCB. Therefore, cumulative impacts of related projects on construction-related water quality effects would be expected to be less than significant and the project's incremental contribution would not be considerable and would be less than significant.

As indicated under Impact 4.9-2 (Long-Term Water Quality Effects of Urban Runoff) of this DEIR, the existing agricultural uses at the project site currently discharge stormwater and agricultural runoff from the site. Implementation of structural and nonstructural best management practices (BMPs) (described in Section 4.9, Hydrology and Water Quality) as part of the proposed project would substantially improve runoff water quality compared with existing agricultural runoff. While there are no assurances that the related projects would incorporate the same degree or methods of treatment as the proposed project, several of the related projects would phase out existing agricultural runoff discharges from their respective sites and, similar to the project, could provide some level of water quality improvement. However, each related project that would discharge stormwater runoff would be required to comply with NPDES discharge permits from the applicable RWQCB, which adjusts requirements on a case-by-case basis to avoid significant degradation of water quality. Although greater quantities of urban runoff may be discharged to drainage channels and downstream water bodies (including the San Joaquin River) with implementation of the related projects because of an increase in impervious surfaces, associated surface water quality impacts would be expected to be less than significant because of improved or similar quality of runoff compared to existing conditions and the project's incremental contribution would not be considerable and would be less than significant.

GROUNDWATER SUPPLY AND QUALITY

The City is a participant in the South San Joaquin Irrigation District (SSJID) South County Surface Water Supply Project (SCSWSP), which will ultimately reduce the City's dependence on groundwater resources, which have historically been overdrafted. As a result, it is anticipated that providing potable water needed to serve land uses associated with the project (i.e., residential, commercial) would result in less-than-significant impacts to groundwater resources. However, cumulatively significant impacts could occur because of overdrafting or an increase of salinity intrusion resulting from cumulative groundwater usage by entities other than the City. The

City would continue to limit its contribution to this impact by limiting its own groundwater usage to what has been determined to be sustainable levels. Despite the City's limitations on its own groundwater usage, groundwater impacts could be cumulatively considerable because the City cannot be certain that other groundwater users would similarly limit their own groundwater usage to sustainable levels. This would be a cumulatively significant impact. There would be no additional groundwater pumping at the project site; therefore, the project's incremental contribution would not be considerable and would be less than significant.

SURFACE DRAINAGE

Other new developments within the city would also be required to construct stormwater conveyance and detention facilities to control surface runoff. All stormwater management systems constructed to serve individual projects would be required to comply with the policies of the City's drainage master plans. In addition, cumulative impacts from related projects would undergo separate environmental review to ensure that adequate stormwater conveyance facilities would be constructed to serve those projects. Therefore, it is anticipated that future development would result in less-than-significant cumulative stormwater conveyance impacts. The project would construct an extensive, on-site stormwater management system to collect, detain, and discharge the stormwater runoff (13.62 acre-feet) generated on the project site. The project's planned stormwater system and recommended mitigation would be sufficient to serve the project site. As a result, no significant stormwater impacts would occur. However, it cannot be assumed that all potential environmental impacts associated with the development of additional off-site stormwater conveyance facilities required to serve future cumulative project would be mitigated to less-than-significant levels. Therefore, potentially significant cumulative utilities impacts could occur related to stormwater facilities and the project's contribution to potential cumulative impacts would be cumulatively considerable.

FLOOD CONTROL

The project site is located outside the 100-year floodplain. Therefore, the project would not contribute to a cumulative increase in flood elevations through the removal of areas from the 100-year floodplain. This would be a less-than-significant cumulative impact.

5.3.11 PUBLIC SERVICES AND UTILITIES

The City is responsible for ensuring that water and wastewater services are adequately provided within its jurisdictional boundaries. The City General Plan identifies goals and policies associated with providing water, wastewater, and stormwater flow. The 2000 Urban Water Management Plan and City of Manteca Sewer Master Plan provides for all the water and wastewater needs for cumulative City development.

WATER SUPPLY

In 2002, the City completed the 2000 Urban Water Management Plan, which plans for the provision of adequate water supply, storage, and delivery for the City. It is assumed that the development of related projects, and/or the development of the additional utility systems required to serve them, would be preceded by the required CEQA review. However, it cannot be assumed that all potential environmental impacts associated with the development of the additional water capacity and infrastructure required to serve these related projects would necessarily be mitigated to less-than-significant levels. Therefore, potentially significant cumulative utilities impacts could occur related to water supply and treatment capacity.

As indicated in the water supply assessment prepared for the project (Appendix F), future water supply for the City would consist of groundwater from the City's existing and planned municipal wells and surface water deliveries from the SSJID's SCWSP. Deliveries from the SCWSP began in the year 2005 and, assuming normal precipitation years, will range from 11,500 acre feet per year (afy) in the year 2005 to 18,500 afy after development of a subsequent phase. It is projected that future water demand (i.e., project plus existing plus future

cumulative development) would range from 15,270 afy in the year 2005 to 35,000 afy in the year 2025. Future water supply available to the City from groundwater sources and the SCWSP would be adequate to meet future water demand during all horizon years (i.e., 2005, 2010, 2015, 2020, 2025). Therefore, the project and future related projects would not result in a significant cumulative impact related to water supply and the project would not result in any cumulatively considerable incremental contributions to any significant cumulative water supply impacts.

WASTEWATER

The City of Manteca Wastewater Quality Control Facility Master Plan (1999) defines sewer facilities required to meet the City's level of service standard for serving future development. It is assumed that the development of future related projects, and/or development of additional utility systems required to serve future projects, would undergo environmental review as required by CEQA. However, it cannot be assumed that all potential environmental impacts associated with development of additional wastewater capacity and infrastructure required to serve these related projects would necessarily be mitigated to less-than-significant levels. Therefore, potentially significant cumulative utilities impacts could occur related to wastewater treatment and disposal capacity expansions, as needed, and the project's contribution to this significant cumulative impact would be cumulatively considerable.

5.3.12 TRANSPORTATION AND CIRCULATION

Section 4.11, "Transportation and Circulation," of this DEIR evaluates both project-specific and cumulative traffic impacts. Project-specific impacts are addressed in the discussion of Existing with Project Conditions. The intersection LOS calculations for cumulative plus project conditions indicates that 19 of the 23 study intersections are expected to operate at unacceptable conditions. In addition, under cumulative plus project conditions, the following roadway segments are expected to operate at an unacceptable LOS:

- Atherton Drive between Airport Way and Union Road
- Atherton Drive between Union Road and Main Street
- Airport Way between Yosemite Avenue and Daniels Street
- Airport Way between Daniels Street and SR 120
- Airport Way between SR 120 and Atherton Drive
- Airport Way between Atherton Drive and Woodard Avenue
- Airport Way between Woodward Road and Peach/McKinley Avenue
- Union Road between Wawona Street and SR 120
- Union Road between SR 120 and Atherton Drive
- Union Road between Woodward Road and Peach Avenue
- Main Street between SR 120 and Atherton Drive
- Main Street between Atherton Drive and Woodard Avenue
- Woodward Road between McKinley Avenue and Airport Way
- Woodward Road between Airport Way and Oleander Road
- Woodward Road between Oleander Road and Union Road
- Woodward Road between Tinnin Road and Main Street

This would be a significant cumulative impact and the project's contribution would be considerable.

5.3.13 CULTURAL RESOURCES

Cumulative impacts to historic and unique archaeological resources are based on analysis of past, present, and reasonably foreseeable future actions in the vicinity of the proposed project, in combination with potential effects of implementing the project. In general, archaeological resources within the San Joaquin Valley result from thousands of years of human occupation. Previous development activities have disturbed, destroyed, or

compromised numerous archaeological resources, and also resulted in a degradation of the historic fabric and integrity of the rural farming and ranching landscape surrounding the town of Manteca. The degradation of cultural resources is occurring at an increasingly greater rate as the population increases. While the project would result in ground-ground disturbing activities, no historic elements of the built environment would be impacted, and technical studies have failed to identify archaeological resources that may be impacted by the proposed project. Therefore, the project would not result in significant cumulative impacts to cultural resources

5.3.14 POPULATION AND HOUSING

Development of the proposed project would increase the number of jobs in the city. The jobs-housing indices for the County and City indicate that the number of employed residents living in the County and City exceed the number of jobs, and that there is a net out-commuting population. Given these conditions, jobs generated by the proposed project are expected to be filled in large part by the existing resident labor pool. The creation of new jobs associated with the project would assist the City in meeting its goal to better balance the City's job-housing index. While the cumulative population and housing context indicates that there is a net out-commuting of jobs, which could be interpreted as a significant cumulative impact, the project's contribution to this impact would not be considerable because it would assist the City in bringing its job-housing index into balance. This would be a less-than-significant cumulative impact.

Population growth, by itself, is not considered a significant cumulative effect because it is not an environmental impact. However, population growth, and related housing and infrastructure, does lead to conversion of land to other uses, the impacts of which are considered in the appropriate sections of this document.

6 OTHER CEQA SECTIONS

6.1 SIGNIFICANT AND UNAVOIDABLE IMPACTS

CEQA Section 21100(b)(2)(A) provides that an EIR shall include a detailed statement setting forth "in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented." Chapter 4 of this DEIR provides a detailed analysis of all environmental impacts of the project that have the potential to be significant, feasible mitigation measures that could reduce or avoid the project's significant impacts, and whether these mitigation measures would reduce these impacts to less-than-significant levels. Chapter 5, "Cumulative Impacts," identifies the significant cumulative impacts of the project. If a specific impact cannot be reduced to a less-than-significant level, it is considered a significant and unavoidable impact. Significant and unavoidable environmental impacts (direct, indirect, and cumulative) of the proposed project include the following.

6.1.1 PROJECT IMPACTS

IMPACT 4.2-3: Visual Resources—Degradation of Visual Character. *Implementation of the project would substantially alter the visual character of the project site through conversion of agricultural land to developed urban uses. This would be considered a significant impact.*

Because of the scale and location of the proposed project, no feasible mitigation is available to address visual resource impacts associated with the conversion of agricultural land to commercial development. Although design, architectural, development, and maintenance standards are included in the project to ensure that commercial development at the project site remains within the City's aesthetic guidelines, there is no mechanism to allow implementation of the project while avoiding the conversion of the local viewshed from agricultural to commercial development. Therefore, the project's impact on the local visual character of the project site would be a significant and unavoidable impact.

IMPACT 4.3-2: Air Quality — Generation of Long-Term Operational Emissions of Criteria Air Pollutants and Precursors. *Following full buildout of the proposed project, emissions of criteria air pollutants and precursors associated with the daily operation of the proposed project would exceed SJVAPCD's thresholds of significance for ROG and NOX of 10 tpy. Operational emissions of PM10 would not exceed the SJVPACD's threshold of significance for PM10. Nevertheless, operational emissions could violate or contribute substantially to an existing or projected air quality violation, conflict with the applicable air quality planning efforts, and/or expose sensitive receptors to substantial pollutant concentrations. This long-term impact would be significant.*

With implementation of Mitigation Measure 4.3-2 and Mitigation Measure 5-1, the project's generation of long-term operational emissions of criteria air pollutants and precursors (i.e., ROG, NOX) would be reduced; however, the extent to which the measures would be able to reduce emissions is dependent on the behavior of project customers and employees. In addition, the project's current operational emissions exceed the SJVAPCD significance thresholds by 183% and 168% for ROG and NOX, respectively. It is not expected that even with full implementation and participation in the proposed mitigation measures that operational emissions would be reduced to a less-than-significant level. Therefore, the impact is considered significant and unavoidable.

IMPACT 4.4-3: Noise—Long-Term Project-Generated Operation-Related Noise Levels from Stationary Sources at Existing Noise-Sensitive Receptors. *Implementation of the proposed project would result in increases in stationary source noise associated with the proposed use. These stationary noise sources could potentially exceed the City's noise standards (hourly and maximum) and result in a noticeable increase in ambient noise levels. Therefore, this impact is considered potentially significant.*

Implementation of Mitigation Measure 4.4-3, along with compliance with the City's general plan noise policies, would reduce stationary-source noise impacts. However, noise levels at some off-site noise-sensitive land uses

could potentially exceed local noise criteria, even with implementation of all feasible mitigation measures. Single-event noise levels at residential uses located adjacent to areas designated for commercial loading dock areas would be of particular concern because of intermittent noise typically associated with truck deliveries and the loading/unloading of materials. This impact would be considered significant and unavoidable.

IMPACT 4.8-1: Agricultural Resources—Direct Conversion of 52.4 Acres of Important Farmland to Nonagricultural Urban Use. *Implementation of the project would result in the direct conversion of approximately 52.4 acres of Prime Farmland and Farmland of Statewide Importance to nonagricultural urban use. This impact would be significant.*

While partial mitigation is available in the form of participation in the City's Agricultural Mitigation Fee Program (Mitigation Measure 4.8-1), no feasible mitigation is available to fully mitigate the loss of Important Farmland or the conversion of farmland to nonagricultural uses. Although the recommended measure would substantially lessen significant impacts associated with farmland conversion impacts, fees paid to the City would only partially offset conversion of Important Farmland. Therefore, full compensation for losses of Important Farmland would not be achieved, and this impact would remain significant and unavoidable.

IMPACT 4.8-2: Agricultural Resources—Conflict with Surrounding Agricultural Operations. *The proposed project is adjacent to active agricultural parcels located to the west, south, and east. Agricultural operations adjacent to urban development typically result in potential land use conflicts (e.g., increased dust generation, noise from farming equipment, odors from fertilizer applications) and these potential adverse interfaces would be expected to occur adjacent to the project site because active agricultural operations are currently occurring. Therefore, these conflicting activities and uses would result in a potentially significant impact.*

Recommended mitigation (Mitigation Measure 4.8-2) would require the project applicant to prepare an agricultural conflict management plan that identifies specific measures that would be implemented to minimize, to the maximum degree possible, potential conflicts with adjacent agricultural operations. Implementation of this measure would partially mitigate the project's potential impacts resulting from conflicts between urban and agricultural land uses. However, no feasible mitigation exists to eliminate all potential conflicts. Therefore, this impact would remain significant and unavoidable.

IMPACT 4.11-2: Increases in Peak Hour traffic Volumes on Regional Roadways Resulting in Unacceptable Levels of Service. *The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service at two intersections: Union Road/Daniels Street and Union Road/eastbound SR 120 ramps. Because the project would result in an unacceptable operating condition based on applicable standards, this impact would be significant*

With implementation of Mitigation Measures 4.11-2a and 4.11-2b, the project's impacts to two study area intersections (i.e., Union Road/Daniels Street and Union Road/Eastbound SR 120 Ramps) would be reduced to a less-than-significant level because the project applicant would be required to pay their fair share towards the reconstruction of the Union Road/SR 120 interchange (which includes intersection widening and signalization of the Union Road/Daniels Street intersection). However, this improvement is undergoing environmental review and may not be completed prior to opening of the proposed project. Therefore, for purposes of CEQA, this would be considered a significant and unavoidable temporary impact until the improvement is in place. Once the improvement is in place, this would be a less-than-significant impact.

IMPACT 4.11-5: Project and Cumulative Bus transit Services. *Implementation of the project would generate demand for public bus transportation services. Because limited bus services are currently available to serve the project area and none are proposed as part of the project, this impact would be significant.*

With implementation of Mitigation Measure 4.11-5, the project's impacts to transit system would be reduced to a less-than-significant level because the project applicant would be required to coordinate with the City and modify project designs to provide appropriate bus transit facilities at the project site. However, it cannot be guaranteed that the City would be able to extend bus transit routes to the project site at the time the project begins operation. Therefore, for purposes of CEQA, this would be considered a significant and unavoidable impact.

IMPACT 4.11-6: Increases in Peak Hour traffic Volumes on Local Roadway Segments Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). *Operational traffic conditions for cumulative no project conditions on 12 roadway segments in the project study area would operate at an unacceptable LOS. The project would contribute trips to these intersections and would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. This would be a significant impact.*

With implementation of Mitigation Measures 4.11-6a through 4.11-6l, the project's cumulative impacts to 12 roadway segments of Airport Way, Union Road, and Woodward Road would be reduced to a less-than-significant level because the project applicant would be required to pay their fair share cost for widening these roadway segments to four lanes and roadway operations would improve to LOS C conditions. However, implementation of roadway widening improvements prior to project buildout cannot be guaranteed for four roadway segments of Airport Way, two roadway segments of Union Road, and four roadway segments of Woodward Road. In addition, it is unknown whether mitigation (i.e., 4.11-6b through 4.11-6f and 4.11-6-h through 4.11-6l) would be available to fully mitigate potential construction-related impacts associated with implementation of mitigation to a less-than-significant level. Therefore, for purposes of CEQA, this would be considered a potentially significant and unavoidable impact and the project's contribution would be considerable.

IMPACT 4.11-7: Increases in Peak Hour traffic Volumes on Regional Roadways Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). *The proposed project would cause an increase in peak hour traffic volumes that would result in unacceptable levels of service and warrant the need for improvements at 16 intersections under cumulative plus project conditions. Because the project would result in an unacceptable operating conditions based on applicable standards, this impact would be significant.*

With implementation of Mitigation Measures 4.11-7a through 4.11-7p, the project's impacts to 16 study area intersections would operate at an acceptable LOS during the AM and PM peak hours because the project applicant would be required to pay their fair-share of intersection improvements, which have been identified in the PFIP projects list. However, construction of these improvements would occur off the project site and would require preparation of a separate environmental document (e.g., IS, EIR) to analyze specific environmental impacts related to these improvements outside the project site. Additional significant environmental impacts not already identified or evaluated in this DEIR could occur. Therefore, for purposes of CEQA, this would be considered a potentially significant and unavoidable impact and the project's contribution would be considerable.

IMPACT 4.11-8: Increases in traffic Volumes on Freeway Mainlines Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). *Under cumulative no project conditions, 8 freeway mainline segments would operate at an unacceptable LOS during peak hours. With implementation of the project, the project would exacerbate unacceptable LOS that would exceed the City of Manteca's LOS thresholds under cumulative conditions. This would be a significant impact.*

With implementation of Mitigation Measure 4.11-8, the applicant shall pay their fair share to extend Atherton Drive westerly from the project site to connect to the existing terminus of Atherton Drive near Sparrowhawk Street. the project's cumulative impacts to freeway mainlines would improve to an acceptable LOS under Cumulative Plus Project conditions and cumulative operational impact to these freeway segments and would be reduced to a less-than-significant level because the project applicant would be required to pay their fair share for the extension of Atherton Drive westerly from the project site to connect to the existing terminus of Atherton Drive near Sparrowhawk Street and to the SJCOG regional transportation impact fee to support current and future freeway widening projects in the area. However, it is unknown whether this mitigation would be implemented prior to project buildout and whether mitigation would be available to fully mitigate potential construction-related impacts associated with implementation of the mitigation to a less-than-significant level. Therefore, for purposes of CEQA, potential cumulative impacts associated with the recommended mitigation would be potentially significant and unavoidable and the project's contribution would be considerable.

IMPACT 4.11-9: Increases in traffic Volumes on Freeway Ramps Resulting in Unacceptable Levels of Service under Cumulative Plus Project Conditions (2015). *Traffic generated by the proposed project would exacerbate already unacceptable freeway ramp operations at the Airport Way and Union Road interchanges under cumulative plus project conditions. This would be a significant impact.*

With implementation of Mitigation Measure 4.11-9, the project's cumulative impacts to freeway ramps would be reduced to as less-than-significant level because the project applicant would be required to pay their fair-share towards improvements at the Airport Way/SR 120 and Union Road/SR 120 interchanges which would improve ramp terminal intersection operations by adding additional turn lanes. The project's impacts would be reduced to as less-than-significant level because the additional capacity created by the auxiliary lanes would be greater than the additional traffic generated by the projects. However, it is unknown if all the auxiliary lanes would be built and whether improvements would be in place prior to buildout of the project. Therefore, for purposes of CEQA, cumulative impacts to the Airport Way/SR 120 and Union Road/SR 120 ramp junction are considered significant and unavoidable and the project's contribution would be considerable.

IMPACT 5-1: Substantial Contribution of Greenhouse Gas Emissions. *Construction- and operation-related activities of the proposed project would result in a net increase in greenhouse gas (GHG) emissions. The construction GHG emissions would be less than a level generally viewed as considerable and therefore they would not be significant. The increase from operations would be above levels generally determined to be considerable and would conflict with the state's AB 32 goals, which require reductions in statewide emissions levels of GHGs. The project's GHG emissions would contribute to the cumulative impact that is global climate change. As a result, this impact would be considered significant.*

With implementation of Mitigation Measure 5-1, the project's GHG emissions would be reduced. However, at the time of writing this EIR these reductions cannot be fully quantified. Thus, the net increase in GHG emissions resulting from the project may still be considered substantial. Because the project would potentially still result in a net increase in CO2 emission levels and conflict with the state's AB 32 goals, this impact would be remain significant and unavoidable.

6.1.2 CUMULATIVE IMPACTS

As indicated in Chapter 5, "Cumulative Impacts," project implementation would result in direct and indirect cumulatively considerable incremental contributions to significant cumulative impacts related to agricultural resources, air quality, noise, transportation and circulation, visual resources, public services and utilities (wastewater), and hydrology and water quality (surface drainage). No additional feasible mitigation is available for the cumulative impacts identified. Because these impacts are a product of cumulative growth, and because no feasible mitigation is available to reduce these impacts to less-than-significant levels, these significant impacts cannot be avoided and thus represent significant and unavoidable adverse impacts.

6.2 GROWTH-INDUCING IMPACTS

6.2.1 INTRODUCTION

The State CEQA Guidelines (Section 15126[d]) require that an EIR evaluate the growth-inducing impacts of a project. Growth-inducing impacts are described in Section 15126.2(d) as follows:

> [T]he ways 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…. Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects…. [In addition,] the characteristics of some projects…may encourage and facilitate other activities that could significantly affect the

environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Included in this definition are public works projects that would remove obstacles to population growth. Direct growth inducement would result if a project, for example, involved the construction of new housing. Indirect growth inducement would result, for example, if project implementation resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- a construction effort with substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement may lead to adverse environmental impacts if the induced growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected and thus would lead to adverse physical effects that might not occur otherwise. Local land use plans provide for land use development patterns and growth policies that encourage orderly urban development supported by adequate urban public services such as water supply, roadway infrastructure, sewer services, and solid waste services. A project that would induce "disorderly" growth (i.e., growth that would conflict with the local land use plans) could indirectly cause additional adverse environmental impacts and other public services impacts.

Growth in itself does not have physical environmental impacts and is thus not treated as an environmental resource; however, growth may foreseeably lead to physical environmental effects, which could include increased demand for public services, increased traffic and noise, degradation of air or water quality, or conversion of agricultural and open space land to urban uses.

6.2.2 Summary of City of Manteca General Plan EIR Analysis of Growth-Inducing Impacts

The project site is located in the southern portion of the City of Manteca. The project site is designated for general commercial (GC) use and low-density residential (LDR) use. Because the project does not include development of residential uses, the project would require a general plan amendment to rezone a 6.3-acre portion of the project site from LDR to GC to allow for development of a commercial retail center. The primary purpose of the General Commercial district is to provide areas for wholesale, warehousing, and heavy commercial activities, including regional shopping centers, recreation and entertainment, and commercial activities that cater to tourists and highway travelers in areas near Interstate 5 and State Rout (SR) 99 and SR 120. The existing land use designations in the City of Manteca General Plan (City General Plan) (i.e., GC, LDR) for the proposed project site indicate that the City has planned for conversion of this land to urban uses. Development of the proposed project would require various entitlements from the City of Manteca to allow the development of the project to occur. The growth-inducing impact analysis in the City General Plan EIR considers overall development of the City General Plan (2003), including the proposed project site.

In addition, the project would redesignate these three residential parcels for single-family residential use (R-1). The project does not include development of any additional residential uses or development for the area that would be prezoned to the R-1 land use designation; therefore, existing residential land uses located in this area are considered to remain in their existing condition with implementation of the proposed project and would not result in any growth inducement.

6.2.3 GROWTH-INDUCING IMPACTS OF THE PROJECT

As discussed above, the City General Plan identifies primarily commercial and some residential uses on the project site. The proposed project includes similar land uses as the City General Plan, and the proposed densities are similar to or lower than previously considered uses in the City General Plan. The proposed project would result in the development of an approximately 450,000 square-foot commercial retail center on 48.5 acres. The project would include retail, restaurants, markets, and office space.

Although there are differences from the City General Plan designations for the proposed project site, many aspects of the proposed project are consistent with the general plan and other City planning documents and the overall proposed development pattern is similar, as discussed below.

ROADWAYS

Roadways providing access to the project site would consist of existing roads and improved roads along existing roadway alignments. The project would develop and/or improve the road network in the project area. The City of Manteca Redevelopment Agency recently approved extension of Atherton Drive from Union Road to Main Street. While the project would benefit from this roadway improvement, the project itself would not provide new access or substantially enhanced access to currently undeveloped areas. Further, this roadway extension is proposed to support existing, proposed, and approved development within the area, was identified in the City General Plan and PFIP program, and would assist with the development of the project area. Therefore, the proposed roadway network would not be growth inducing.

WATER UTILITIES

The proposed project includes the construction of a 20.04-acre-foot stormwater detention basin located adjacent to the western boundary of the project site. In addition, off-site culvert improvements and construction of two flow diversion structures would be needed to alleviate flooding and provide storm drainage capacity for the project. These facilities would not be intended to serve other development outside the project area, and therefore would not induce growth.

Water for the project would be provided through the conjunctive use of both groundwater from existing city wells and the surface water from the South County Surface Water Supply Project (SCSWSP). The project would construct on-site water infrastructure improvements that would tie into the existing 12-inch water line located along Atherton Drive. This new infrastructure would not be designed to serve additional growth above what is proposed on the project site. Therefore, construction of these facilities would not be growth inducing.

The project would construct the necessary facilities to connect development within the project site to the City's wastewater conveyance system. Depending on available capacity in the existing 12-inch sanitary sewer force main located in Woodward Avenue and the pump capacity at Antigua Pump Station, upgrades to downstream infrastructure may be necessary. These upgrades would not be designed to serve development outside the project site. Therefore, construction of these facilities would not be growth inducing.

POPULATION, HOUSING, AND EMPLOYMENT

The project would involve a substantial construction effort over a 44-month period. The construction efforts during peak periods would bring up to 30 construction workers to the project site on a daily basis. Because construction workers typically do not change where they live each time they are assigned to a new construction site, it is not anticipated that there would be any substantial relocation of construction workers to the City of Manteca associated with the project. The existing number of residents in the city and county who are employed in the construction industry would likely be sufficient to meet the demand for construction workers that would be generated by the project. Therefore, no substantial increase in demand for housing or goods and services would be

created by project construction workers, and thus no growth inducement associated with these workers would occur.

The proposed project would include the development of up to 450,000 square-foot commercial retail center including retail, restaurants, market, and office space. The project is estimated to generate 900 employees by project buildout. The 2000 jobs-housing index for San Joaquin County and the City of Manteca was 1.22 and 1.34, respectively, indicating an imbalance between housing (i.e., reflected as employed residents) and jobs, with housing growth outpacing employment growth. This index indicates that San Joaquin County and the City of Manteca had more employed residents than jobs in 2000 and that the County supported a net out-commuting population. By 2010, the jobs-housing index for the County and City indicate that the number of employed residents living in the County and City would still exceed the number of jobs (refer to Tables 4.13-2 and 4.13-3 in "Population Housing, and Employment"). Because the county and city are "housing rich," the number of housing units available should be sufficient to accommodate the employees generated by the proposed project. In 2010, shortly after buildout of the project, the jobs-housing index is projected to be 1.17, which indicates that there would be approximately 4,061 more employed residents than jobs (refer to Table 4.13-3 in "Population, Housing, and Employment"). If the jobs generated by the proposed project are filled by employed residents in the city, the jobs-housing index would decrease to 1.13, indicating a more balanced condition (refer to Table 4.13-4 in "Population, Housing, and Employment"). Given these conditions, jobs generated by the proposed project are expected to be filled in large part by the existing resident labor pool in the city and region. Therefore, the project is not anticipated to spur significant population growth or need for additional housing.

PUBLIC SERVICES

Police, fire, and other City services would be expanded only as necessary to meet project demand. Therefore, with respect to public services, the project would not facilitate additional development because the project would not create additional an additional capacity for public services in the city.

AGRICULTURE

Lands located east, west, and south of the project site are currently in active agricultural production but are designated by the City General Plan for low density residential land uses. Because of this designation, the intended long-term use of these properties is for residential land uses. As the proposed project develops, it would place urban development adjacent to agricultural land. Historically, this type of land use pattern results in conflicts between the ongoing agricultural operations and the urban development uses. Further, economic returns from urban development are typically substantially higher than continued agricultural use of land, and encroaching urban uses typically make it attractive to convert adjacent agricultural land to urban uses. Thus, it can be expected that the proposed project would place pressure on agricultural land to the east, west, and south of the site to convert to urban uses. Conversion of these agricultural lands for urban uses is consistent with the long-term planning for the area. Therefore, the long-term urbanization of these properties would not be considered a reasonably foreseeable indirect effect of the proposed project. (See State CEQA Guidelines Section 15358 [defines "effects" for purposes of CEQA as including "[i]ndirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still *reasonably foreseeable"*] [emphasis added].)

CONCLUSION

Overall, the proposed project would not be growth inducing for the reasons described above.

6.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines require a discussion of the significant irreversible environmental changes that would be involved in the project should it be implemented.

The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms. The proposed project would result in the irreversible and irretrievable commitment of energy and material resources during project construction, operation, and maintenance, including the following:

- construction materials, including such resources as rocks, wood, concrete, glass, roof shingles, and steel;
- human labor for project construction;
- land area committed to new project facilities;
- conversion of agricultural land to urban uses;
- water supply for project operation; and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operation.

The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Long-term operational energy and natural resource consumption is expected to be significant, although it would not exceed the capacity of energy suppliers to meet local demand once the new infrastructure is in place. Construction activities would not result in inefficient use of energy or natural resources. Construction contractors selected would use best available engineering techniques, construction and design practices, and equipment operating procedures. Because implementation of the proposed project would result in substantial long-term consumption of energy and natural resources, these potential irreversible changes would be significant.

Further, the project would result in the permanent conversion of approximately *52.4 acres of Important Farmland to nonagricultural use* (i.e., urban commercial land uses). As described in Section 6.1, "Significant and Unavoidable Impacts," this would be a significant and unavoidable irreversible environmental change.

7 ALTERNATIVES TO THE PROJECT

State CEQA Guidelines Section 15126.6(a) requires an evaluation of "a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives." The project objectives are stated in Section 3.3, Project Objectives, of this DEIR. Alternatives are used to determine whether or not a variation of the project would reduce, or eliminate, significant project impacts, within the basic framework of the objectives. State CEQA Guidelines Section 15126.6(f) specifies that the range of alternatives is governed by the "rule of reason," requiring evaluation of only those alternatives "necessary to permit a reasoned choice." Further, an EIR "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (State CEQA Guidelines Section 15126.6[f][3]).

State CEQA Guidelines Section 15126.6(e) requires that, among other alternatives, a "no-project" alternative be evaluated in comparison to the project. State CEQA Guidelines Section 15126.6(e) requires that the no-project analysis "discuss the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with the available infrastructure and community services." Accordingly, a No Project-No Development alternative that assumes continuation of the existing land uses is analyzed in this DEIR. In addition, a No Project-Existing Entitlement alternative will be analyzed in this DEIR. This alternative describes the land uses that would be allowed to develop under existing land use and zoning designations compared to the impacts of the proposed project.

Other alternatives considered and evaluated in detail include a Mitigated Design Alternative and an Off-site Alternative. Descriptions of project alternatives are provided below. The advantages and disadvantages of each, compared to the project, are presented and an evaluation of each alternative's ability to meet most of the project's basic objectives is included. Any significant environmental impacts created exclusively by an alternative are also identified. Finally, a summary of the impacts for each resource area, as compared to the project, is provided at the end of each discussion (i.e., less, greater, or similar).

A more detailed description of the baseline conditions, evaluation methodology, and results are included in Chapter 4 of this DEIR and in technical reports prepared as part of the evaluation.

7.1 SUMMARY OF ENVIRONMENTAL CONSTRAINTS

The purpose of this section is to summarize the site-specific environmental constraints, as identified and discussed in Chapter 4, Existing Conditions, Thresholds of Significance, Environmental Impacts, and Mitigation Measures, of this DEIR. These site-specific environmental constraints, if not avoided through either project design or mitigation, could result in significant or potentially significant environmental impacts.

Potential site-specific environmental constraints include conversion of important farmland, potential conflicts with adjacent agricultural operations, noise impacts, impacts to sensitive biological species, air quality impacts, impacts to the visual character of the site, potential impacts to cultural resources, and traffic impacts. These constraints and their effects on the range of alternatives were considered in the analysis of alternatives.

The project would result in the following significant and unavoidable impacts:

Agricultural Resources. The project would result in the conversion of 48.5 acres of important farmland to commercial uses (project and cumulative impacts). The project would also result in potential conflicts between urban uses at the project site and surrounding agricultural operations (project impact) (discussed in Section 4.8, Agricultural Resources);

Visual Resources. The project would convert an existing agricultural site into a commercial development that would substantially change the local visual character of the project site and would contribute to the urban visual transition of the project area from agricultural to urban land uses (project and cumulative impacts) (discussed in Section 4.2, Visual Resources);

Air Quality. The project would contribute to long-term regional air quality emissions that exceed SJVAPCD standards (project and cumulative impacts) (discussed in Section 4.3, Air Quality).

Noise. Existing and future (residences nearby that are under construction) noise-sensitive receptors would be exposed to construction and project-generated stationary source noise impacts that exceed City noise standards (project and cumulative impacts) (discussed in Section 4.6, Noise).

Transportation and Circulation. The project would increase project and cumulative traffic volumes along freeway mainline segments and ramp junctions of SR 120 and exacerbate existing adverse operating conditions of SR 120 and its off-ramps (discussed in Section 4.11, Transportation and Circulation).

The potential for the alternatives to avoid or reduce the project's significant impacts was considered in the analysis of alternatives.

7.2 NO PROJECT ALTERNATIVE–NO DEVELOPMENT

The No-Project Alternative—No Development assumes that existing conditions on the project site would remain. The project site would continue to support the existing agricultural operations and rural residential land uses and no new facilities would be constructed. Although the City General Plan foresees development in this area, this analysis uses existing conditions as the "no-project" scenario consistent with the requirements of the CEQA Guidelines Section 15126.6. Although this alternative is evaluated herein, it is an unlikely long-term alternative for the project area because of the urban land use designations in the City General Plan. Given the City General Plan designations for urban development, future development interest in the site is extremely likely. Further, because the City's adopted land uses for this site are similar to land uses proposed for the project, development that would be expected to occur in absence of the project would likely be substantially similar to development proposed by the project. Therefore, to allow meaningful consideration of a range of alternatives, this No-Project Alternative evaluates the continuation of existing agricultural and rural residential uses at the site in comparison to the project's proposed developed land uses.

Consistent with CEQA requirements, the No-Project Alternative is evaluated in this EIR. The No-Project Alternative would not meet any of the objectives of the project because development of mixed commercial land uses would not occur. In addition, the No-Project Alternative would not be consistent with the intent of the City's General Plan, which calls for development of residential and commercial land uses.

7.2.1 ENVIRONMENTAL ANALYSIS

LAND USE

Under the No Project Alternative, land uses at the project site would remain unchanged and existing communities would remain intact. The project would not result in the division of an established community and its land use impacts would be less than significant. Therefore, this alternative would not reduce or avoid any significant land use impacts and overall impacts would be similar. *[Similar]*

AGRICULTURAL RESOURCES

This alternative would eliminate the project's significant and unavoidable impact related to conversion of important farmland. In addition, because no urban uses would be developed, this alternative would avoid the

project's significant and unavoidable impacts related to conflicts between urban and agricultural uses. Therefore, this alternative would result in substantially less agricultural resource impacts compared to the project. *[Less]*

VISUAL RESOURCES

Under this alternative, no new development would occur. Thus, there would be no alteration in the visual character of the project site, views of the project site from surrounding areas would be unchanged, and no new sources of light and glare would be created. By comparison, the project would substantially alter the visual character of the project site through the conversion of a portion of the site to urban land uses. This project and cumulative impact is considered significant and unavoidable and would not occur under the No Project Alternative. *[Less]*

AIR QUALITY

The No Project Alternative would not include any new development, and thus would not generate new construction or operation-related emissions. The project would result in significant impacts related to construction-related emissions and significant and unavoidable impacts related to long-term regional emissions. Implementation of the No Project Alternative would not result in this significant and unavoidable impact. Although this alternative would generate dust (PM_{10}) through continued cultivation of on-site areas, these emissions would be substantially less that emissions generated by the project; therefore, overall air quality impacts would be less. *[Less]*

NOISE

Under the No Project Alternative, no new construction would occur, no new noise-generating land uses would be developed, and no additional traffic would be generated. Therefore, there would be no increase in potential noise conflicts under this alternative. By comparison, the project would result in significant and unavoidable impacts related to construction-related noise and single-event noise and stationary noise at adjacent land uses. Implementation of the No Project Alternative would not result in these significant and unavoidable impacts; therefore, this alternative would result in less noise impacts than the project. *[Less]*

BIOLOGICAL RESOURCES

The No-Project Alternative would not include any development in the project area and would thus not disturb any existing on-site species or habitats. The project site would be retained in its existing agricultural state and would continue to provide the same type, extent, and quality of habitat. By comparison, the proposed project would develop a portion of the site with urban uses, resulting in significant and potentially significant impacts on sensitive and special-status plant and wildlife species and trees. Although these impacts would be reduced to less-than-significant levels after mitigation, this alternative would not result in the substantial disturbance or removal of on-site habitat. *[Less]*

HAZARDS AND HAZARDOUS MATERIALS

Under the No Project Alternative no new development would occur; therefore, no new facilities that use hazardous materials would be located on the project site and no new workers or visitors would have the potential to be exposed to existing or new sources of hazardous materials on the site. The use of hazardous substances (e.g., herbicides and pesticides) by the existing agricultural operations would continue; however, it is assumed that during the use of these materials, existing application, storage, and disposal regulations would continue to be followed. By comparison, the project would result in an impact related to the use of hazardous materials during project construction and the potential exposure of construction workers to potential sources of hazardous materials during project construction. There would be increased potential for construction workers to be exposed to hazardous materials at existing and new contaminated areas on the project site. However, this impact is

considered less than significant either before or after mitigation through adherence to applicable regulations and appropriate testing and clean-up of potentially contaminated sites. Because no significant impacts related to hazardous materials and public health were identified for the project after mitigation, the No Project Alternative would not reduce or avoid any significant impacts related to this issue area and similar impacts would occur. *[Similar]*

GEOLOGY, SOILS, AND SEISMICITY

The No Project Alternative would not include any new construction activities and existing buildings and other facilities would remain in their current state on the project site. Therefore, there would be no construction-related erosion potential and no potential increase in risk of exposure to injury or property damage because of a seismic event.

By comparison, the project would result in significant impacts related to seismic ground shaking and soil erosion. However, all impacts would be reduced to less-than-significant levels after mitigation. Because the project would not result in any significant impacts related to geology and soils after mitigation, the No Project Alternative would not reduce or avoid any significant impacts related to this issue area and similar impacts would occur. *[Similar]*

HYDROLOGY AND WATER QUALITY

Under the No Project Alternative, no new construction would occur; therefore, there would be no potential construction-related releases of sediment and contaminants into surface waters and groundwater. Mitigation is proposed in this DEIR to reduce these impacts to a less-than-significant level. Because the project site would not be developed under this alternative, existing drainage from agriculture would occur during storm events. As discussed in Section 4.9, Hydrology and Water Quality, existing stormwater runoff from the site could result in transport of a variety of pollutants associated with agricultural practices to the San Joaquin River. Under the project, various stormwater pollution prevention devices/best management practices would be implemented, which would result in substantially improve overall water quality during storm events than under No Project Alternative conditions. These impacts are mitigated to less-than-significant levels under the project. Thus, local waterway (i.e., San Joaquin River) water quality would be improved under the project, in comparison to existing conditions and the No Project Alternative.

Because the project would not result in any significant impacts related to hydrology and water quality after mitigation, and because beneficial impacts associated with the project would not occur under the No Project Alternative (i.e., agricultural pollutants would continue to be carried to downstream water bodies), this alternative is considered to have greater impacts than the project. *[Greater]*

PUBLIC SERVICES AND UTILITIES

The No Project Alternative would not include any new development. Therefore, this alternative would not generate increased demand for fire, police, solid waste disposal services, or utilities (i.e., gas, electric, and water), and it would not potentially obstruct access by emergency vehicles because of construction activities. By comparison, the project would include new commercial uses on 48.5 acres of the project site. This would create increased demands for fire, police, and water. Development of the proposed project could potentially disrupt existing PG&E aboveground and underground utility facilities in the project area, resulting in interruption of service. This impact would be mitigated to less-than-significant levels under the project. Other public service and utilities impacts associated with the project would be less-than significant. Because the project would not result in significant public services and utilities impacts after mitigation, the No Project Alternative would not avoid significant impacts related to the provision of adequate public services and utilities. Because no significant impacts related to public services and utilities were identified for the project after mitigation, the No Project Alternative would not reduce or avoid any significant impacts related to this issue area. However, the project

would create an incremental increase in service demand that would not occur under the No Project Alternative. Therefore, this alternative would result in less public services and utilities impacts compared to the project. *[Less]*

TRANSPORTATION AND CIRCULATION

The No Project Alternative would not include any new development and thus would not generate any new traffic-related impacts. By comparison, the project is estimated to generate 16,916 new daily trips and would significantly affect several intersections, roadways, and mainline freeway segments. After mitigation, significant and unavoidable impacts would still occur at some intersections and freeway segments and some intersections that currently operate unacceptably would improve. Regardless, implementation of the No Project Alternative would avoid the project's contribution to adverse operational conditions at these intersections, although cumulative development in the project area would result in many of these impacts even without implementation of the project. *[Less]*

CULTURAL RESOURCES

The No Project Alternative would not require any construction activities, thereby avoiding impacts related to the disturbance, destruction, and physical or visual alteration of any previously undiscovered/ unrecorded cultural resource sites. Under the project, ground disturbance and development of new structures would occur, resulting in potentially significant impacts related to the potential disturbance of undiscovered/unrecorded subsurface archaeological sites and human remains. These impacts would be reduced to less-than-significant levels after mitigation. However, because the No Project Alternative does not include any new development or ground disturbance, it has a lesser potential to result in the disturbance of previously undiscovered subsurface archaeological resources and/or human remains. Therefore, cultural resources impacts would be slightly less under this alternative. *[Less]*

POPULATION, EMPLOYMENT, AND HOUSING

The No Project Alternative would not generate any new residents, jobs, or homes in the City of Manteca. By comparison, the project would not directly result in population growth to the area because it would construct commercial uses. No housing is proposed. Because the project would create new jobs, it could indirectly result in the relocation of some new residents to the area; however, employees for the project would likely come from the existing labor pool within the City. While the project could result in some indirect population growth impacts, it is expected to be relatively minor and would not substantially increase the population in the City. In addition, minor population growth resulting from the project would be consistent with growth anticipated in the General Plan. No significant impacts related to population and housing were identified for the project, so the No Project Alternative would not reduce or avoid any significant impacts associated with the project and overall impacts would be *[Similar]*

7.2.2 SUMMARY

The No Project Alternative would result in greater impacts than the project in one issue area, lesser impacts in eight, and similar impacts in four. Significant unavoidable impacts related to agriculture resources, visual resources, air quality, noise, and traffic associated with the project would not occur under this alternative.

7.3 NO PROJECT ALTERNATIVE – CURRENT ENTITLEMENT

The No Project Alternative – Current Entitlement assumes that the project would be developed with land uses that are consistent with the existing land use and zoning designations. As described in Chapter 3, Project Description, the City General Plan designates the portion of the project site north of the southern three parcels and Phase 3 as General Commercial (GC) and the southern three parcels and the Phase 3 area of the project site as Low Density Residential (LDR). The proposed project includes the prezoning and annexation of the entire site to the City of

Manteca, including three residential parcels (10.9 acres) in the southwest portion of the site and a portion of Woodward Avenue (1.7 acres) located directly below the site. No development is proposed in the residential parcels and the current LDR designation of the three residential parcels would become Single-Family Residential (R-1). Once annexed, the project site would be subject to the planning jurisdiction of the City of Manteca.

As defined by the City General Plan (2003), the GC designation accommodates wholesale, warehousing, and heavy commercial uses, highway-oriented commercial retail, public and quasi-public uses, and similar and compatible uses. The designation is also intended to accommodate visitor commercial, lodging, commercial recreation, and public gathering facilities, such as amphitheaters, or public gardens. The LDR designation accommodates land use with a mix of dwelling unit types and character determined by the individual site and market conditions. The density range of 2.1 to 8.0 dwelling units per gross acre allows substantial flexibility in selecting dwelling unit types and parcel configurations to suit particular site conditions and housing needs.

Because the project site lies within the unincorporated county, the project site has not received a zoning classification from the City of Manteca. As part of the annexation process the project site would receive a prezoning designation from the City. This classification is required by state law to be consistent with the general plan or a general plan amendment performed simultaneously with the annexation process.

The purpose of this alternative is to provide decision makers with information regarding the development and associated environmental impacts that would occur if the project did not move forward and the site was developed consistent with existing land use and zoning designations. As described above, the project's proposed commercial uses would be consistent with the commercial land uses allowed by the GC designation within Phase 1 and 2 of the site; however, Phase 3 of the proposed commercial site would require a general plan amendment to allow the proposed commercial development. As such, if development that was consistent with the GC and LDR designation on the project were to occur, this development would consist of commercial land uses similar to land uses proposed by the project within Phase 1 through 3 of the project site and the remaining 3 residential parcels in the southwestern portion of the project site would contain residential land uses likely of higher density (e.g., between 2.1 and 8 dwellings units per gross acre would be allowable) to be compatible with adjacent commercial activities.

The northern and central portion of the project site would be developed similar to the project; however, the southeast portion of the site (Phase 3) would be developed consistent with LDR designation instead of GC. Because development would still occur within the Phase 3 area, site-specific impacts related to biological resources; cultural resources; visual resources; agricultural resources; land use; hydrology and water quality; geology, soils, seismicity, and paleontological resources; and hazards and hazardous materials could occur similar to the project. The development intensity of the remainder of the southern portion of the site (3 parcels in southeast portion) would be substantially similar to the intensity of development that would occur under the project (i.e., no development would occur). . Impacts related to construction- and operational-related air quality, noise, transportation and circulation, public services and utilities, and population, employment, and housing in the southwestern portion of the project site would be less than the project.

The No Project Alternative – Current Entitlement would result in environmental impacts that would not substantially differ from those evaluated throughout this DEIR.

7.4 MITIGATED DESIGN ALTERNATIVE

The Mitigated Design Alternative is designed to avoid or reduce several of the environmental impacts identified for the project, including minimizing impacts to farmland, noise compatibility, air quality, traffic, sensitive habitats and species, and cultural resources. With this alternative, a reduced density development would be implemented on a smaller portion of the project site.

This alternative would avoid development of 26.2 acres in the central and southeastern portion of the site (Exhibit 7-1). Elimination of this area from the project site would avoid removal of 22.3 acres of Prime Farmland and 3.9 acres of Farmland of Statewide Importance contained within the project site.

In consideration of the project's air quality impacts, it was determined that based on San Joaquin Valley Air Pollution District (SJVAPCD) thresholds, the development footprint and intensity of development on the project site would need to be reduced to approximately 54% of the proposed development to produce emissions that are below significance thresholds. This assumes that the project would comply with emission reduction requirements of SJVAPCD's Rule 9510.

The Mitigated Design Alternative assumes that development on the project site would be reduced to 26.2 acres or approximately 54% (243,000 square feet). Proposed infrastructure and facilities that would serve the development (i.e., roadways, drainage, utilities, parking spaces, etc.) would be similarly reduced. Any existing site structures in the area where construction would occur would be demolished and removed from the site. Site landscaping and setbacks would be in accordance with applicable City guidelines.

The Mitigated Design Alternative would partially meet project objectives by providing a development that is consistent with land use patterns envisioned by the City's General Plan on a portion of the site and at a reduced scale. However, the Mitigated Design Alternative might not be consistent with some project objectives because it may be less economically desirable to develop a project of this size while providing certain amenities essential to this type of project.

7.4.1 ENVIRONMENTAL ANALYSIS

LAND USE

As described in Section 4.1, Land Use, the project would not result in the division of an established community and this impact would be less than significant. This alternative would result in the same development patterns on-site but at a reduced scale. As such, this alternative would result in similar land use impacts as the project. *[Similar]*

AGRICULTURAL RESOURCES

This alternative would reduce the acreage of important farmland that would be developed on-site (26.2 acres versus 48.5 acres). This alternative would eliminate the project's impact to Farmland of Statewide Importance (i.e., 3.9 acres of Farmland of Statewide Importance would not be developed) and substantially decrease the project's impacts to Prime Farmland (i.e., 18.4 acres of Prime Farmland would not be developed). For the remaining Prime Farmland that would be developed under this alternative (i.e., 26.2 acres), similar to the project, mitigation would be provided through participation in the City of Manteca Agricultural Mitigation Fee Program, which would result in agricultural land being preserved elsewhere in the County. However, this mitigation measure would not be sufficient to reduce the impact to a less-than-significant level because Prime Farmland would be permanently lost. Therefore, although this alternative would substantially reduce agricultural impacts, the impact is still considered significant and unavoidable.

Although this alternative would reduce the project's Prime Farmland impacts (by 18.4 acres) and would eliminate impacts to Farmland of Statewide Importance, 26.2 acres of Important Farmland would still be developed, and mitigation is not available to reduce this impact to a less-than-significant level.



Source: EDAW 2009

Mitigated Design Alternative **Exhibit 7-1**

This alternative would reduce (although not eliminate) the project's potential conflicts between on-site urban and surrounding land uses because the majority of the central portion of the site (Phase II) and the southeastern 5.8 acres of the project site would remain undeveloped and would serve as a buffer between the project and adjacent active agricultural operations to the west, south and east. Potential conflicts would still remain because roadways providing access to the project site would also be used by adjacent agricultural operators. Although this alternative would result in a significant and unavoidable impact related to conversion of farmland, impacts would be less than the project because of the reduced acreages that would be converted and the buffer that would be provided between urban and agricultural land uses. *[Less]*

VISUAL RESOURCES

Under the Mitigated Design Alternative, there would be the same alteration of the views of the project site from surrounding lands, but at a reduced scale. Views from SR 120 and local roadways would change from agricultural and open space uses to an urban setting. Similar to the project, this alternative would also contribute to the visual transition of the project area to an urban environment. This impact was identified as significant and unavoidable for the project. With this alternative, the impact would also be considered significant and unavoidable because the viewshed would be substantially changed from existing conditions, similar to what would occur with the project. Lighting would be slightly less under this alternative, but lighting impacts were identified as a less-than-significant project and cumulative impact. Overall aesthetic resources impacts would be the same under this alternative for the reasons described above. *[Similar]*

AIR QUALITY

Both the Mitigated Design Alternative and the project would result in development of the project site and the generation of associated construction- and operations-related air emissions. This alternative would produce approximately 11,246 daily vehicle trips, approximately 54% of the number of trips generated by the project. Overall air emissions would be less under the Mitigated Design Alternative because of the reduced development and vehicle trips.

The project would result in significant impacts related to construction-related emissions and significant and unavoidable impacts related to long-term regional emissions. Under the Mitigated Design Alternative, construction emissions for this alternative would be substantially reduced because of the reduction of grading and development that would occur at the site. This alternative would also result in reduced long-term regional emissions that would be less than the SVJAPCD thresholds of significance for ROG and NOx. Overall emissions would be less than under the proposed project, and all impacts would be reduced to a less-than-significant level. [Less]

NOISE

Both the Mitigated Design Alternative and the project would result in significant and unavoidable impacts related to temporary construction-related noise, single-event noise, and stationary noise at adjacent land uses. After mitigation, under both scenarios, residual significant noise impacts would decrease related to incompatibility between some project land uses and projected on-site exterior noise levels. Impacts would be less under the Mitigated Design Alternative because the intensity of on-site land use would be reduced and the project would no longer be in close proximity to residences near the southern half of the site. Although the Mitigated Design Alternative does not avoid the significant and unavoidable impacts, it does reduce the effects relative to the project. *[Less]*

BIOLOGICAL RESOURCES

Both the project and the Mitigated Design Alternative would develop a large portion of the project site, resulting in significant and potentially significant impacts to protected trees, special-status birds, and common raptors.

However, these impacts would be reduced under this alternative of 26.2 acres (54% of the project site) undeveloped land. The Mitigated Design Alternative would avoid fill of freshwater marsh habitat within the irrigation drainage ditch located along the southwestern border of the project site.

Significant and potentially significant biological resources impacts for both the project and the Mitigated Design Alternative would be reduced to less-than-significant levels through participation in the SJMSCP. However, overall biological resources impacts would be reduced under this alternative for the reason described above. *[Less]*

HAZARDS AND HAZARDOUS MATERIALS

The project would result in an impact related to the use of hazardous materials during project construction and the potential exposure of construction workers to potential sources of hazardous materials during project construction. This impact is considered less than significant after mitigation. This same impact would occur under the Mitigated Design Alternative. *[Similar]*

GEOLOGY, SOILS AND SEISMICITY

Under the Mitigated Design Alternative there would be a reduction in project development footprint; therefore impacts related to construction erosion and risks from seismic and soil hazards would be reduced. This alternative would include the same mitigation measures as the project; therefore, post mitigation impacts would not change (i.e. less than significant).

All impacts related to geology and soils are considered less than significant, or less than significant after mitigation under the project and this alternative. *[Similar]*

HYDROLOGY AND WATER QUALITY

Approximately 56% of the site would be developed under this alternative, so total runoff would be less than under the proposed project. The stormwater drainage system designed for development under this alternative would also be required to detain storm water generated by a 48-hour, 10-year flood event on-site, consistent with City standards, while limiting discharge rates and to meet both drainage and discharge criteria and on-site flooding criteria established by the City. These detention facilities would be appropriately sized for the level of development under this alternative and so on- and off-site impacts (i.e., San Joaquin River downstream) would potentially occur similar to the impacts identified for the proposed project but to a lesser degree. The portion of the site not developed with urban uses would continue to support existing agricultural operations, and could transport to the San Joaquin River a variety of pollutants associated with agricultural practices. By comparison, the proposed project would improve stormwater quality across the entire site, with implementation of mitigation, which requires implementation of stormwater BMPs that would minimize agricultural discharges to downstream water bodies. All hydrology and water quality impacts identified for the proposed project would be less than significant either before or after mitigation. Therefore, the Mitigated Design Alternative would not avoid any significant impacts. This alternative would result in greater discharges of agricultural pollutants to downstream water bodies; therefore, this alternative would result in greater hydrology and water quality impacts than the project. *[Greater]*

PUBLIC SERVICES AND UTILITIES

With the Mitigated Design Alternative, public utilities demands would be less than the project. Total average water demand for the proposed project would be approximately 78,600 gpd for potable water and irrigation. Impacts to police, wastewater conveyance, stormwater/surface runoff management, demand for electricity and natural gas would be less than the project, and existing utility corridors, like those of the project, would be less-than-significant. No significant public services or utilities impacts were identified for the project after mitigation,

so this alternative would not reduce or avoid any significant public services or utilities impacts of the project. *[Similar]*

TRANSPORTATION AND CIRCULATION

The Mitigated Design Alternative would result in development of approximately 245,000 square feet of commercial uses, which is notably less (i.e., 54% of proposed project) than the amount of commercial uses proposed as part of the project. At buildout, the project would result in significant and unavoidable impacts to the operation of SR 120. Further, because it cannot be guaranteed at this time that recommended fair-share improvements to reconstruction of the Union Road/SR 120 interchange, Airport Way/SR 120, and Union Road/SR 120 ramp junction, these impacts would remain significant and unavoidable. Buildout of the project would contribute a higher level of traffic in the project area. As identified in the traffic impact analysis, significant cumulative impacts to SR 99 and SR 120 ramp junctions and SR 120 mainline segments would continue to occur without development of the project. The seven roadway segments operating at unacceptable LOS conditions under cumulative no project conditions would also continue to operate unacceptably under cumulative with project conditions. Development of this alternative would not eliminate these significant cumulative impacts but would reduce the overall impact to freeway operations.

This alternative would result in the development of a new mixed use commercial development that would create demands for public transit services (i.e., bus routes). Currently, no bus services are provided to the site and would not be provided under this alternative. The only feasible mitigation requires coordination of the project applicant to coordinate with the City to ensure that bus transportation services are provided to the project in accordance with City standards, but it is uncertain whether services would be provided. Because the provision of bus transit services to the project site is dependent on actions taken by the City, there is no guarantee that such services would be provided in the future, and this would therefore be a significant and unavoidable impact of both the project and the Mitigated Design Alternative. However, demands for bus services would likely be less under this alternative. The Mitigated Design Alternative would substantially decrease the traffic-related impacts of the project. *[Less]*

CULTURAL RESOURCES

Under the project, ground disturbance and development of new structures would occur resulting in significant and potentially significant impacts related to potential disturbance of undiscovered/unrecorded subsurface archaeological sites and human remains. These impacts would be reduced to less-than-significant levels after mitigation. Impacts to unknown archaeological resources would be potentially significant with this alternative and would be similar to those of the project. No significant cultural resource impacts were identified for the project after mitigation, so this alternative would not reduce or avoid any significant cultural resource impacts of the project. *[Similar]*

POPULATION, EMPLOYMENT, AND HOUSING

Similar to the project, the Mitigated Design Alternative is anticipated to indirectly result in the relocation of some new residents to the area. This indirect population growth impact is expected to be relatively minor and would not substantially increase the population in the City. In addition, minor population growth resulting from the project would be consistent with growth anticipated in the General Plan. The proposed project and Mitigated Design Alternative would create new jobs that would likely bring the regional jobs-housing index closer to a balanced condition. This is not a significant impact of the project. Therefore, this alternative would not reduce or avoid any significant impacts associated with population, employment, and housing. *[Similar]*

7.4.2 SUMMARY

The Mitigated Design Alternative would result in greater impacts than the project in one issue area, lesser impacts in four, and similar impacts in eight issue areas. Significant unavoidable impacts related to traffic, noise, agricultural resources, public services, and aesthetic resources associated with the project would also occur under this alternative, but this alternative would contribute to these impacts to a lesser extent than the proposed project.

7.5 OFF-SITE ALTERNATIVE

An off-site alternative would require the location of another potentially feasible site for development of uses consistent with those of the project. As directed in the State CEQA Guidelines Section15126.6(f) (2) (A), "the key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location." Because certain significant effects of the project are site-specific (such as the conversion of important farmland and intersection impacts), it would be conceivable that an alternative location could avoid the significant effect. Therefore, it is valid to determine if feasible alternative locations may exist in the area.

The State CEQA Guidelines Section 15126.6(f) (2) (B) indicates that "if the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion." If feasible alternative locations do not exist, the EIR analysis need not continue to consider the issue of an off-site alternative.

The area in which it is reasonable to search for alternative sites would be the jurisdiction of the lead agency, the City of Manteca. A site that could feasibly attain the basic objectives of the project would need to be of comparable size, with adequate access to roadways and utilities to support commercial development, in a location where these uses would be consistent with the General Plan designation and compatible with adjacent uses.

An examination of developable parcels in the City and a review of the City of Manteca General Plan Land Use Element led to the conclusion that one feasible alternative location for the project exists and is approximately 1-mile east of the project site in the City of Manteca. Currently, there is an approximately 93-acre area of undeveloped land east of South Main Street and south of SR 120 that is within the city limits and is of sufficient size to accommodate the 48.5-acre development. This site is designated for Commercial Mixed Use (CMU) by the City of Manteca's General Plan (City General Plan). This land use designation at this site would need to be changed to GC to be compatible with development proposed for the project.

The Off-site Alternative would meet all the project objectives. However, the proposed location for the Off-site Alternative is not owned by the project applicant. Further, it is unknown whether the current land owners would be willing to sell their property. This alternative would require substantial time and investment to research the feasibility of acquiring the site, which makes this alternative potentially infeasible from a development standpoint.

7.5.1 ENVIRONMENTAL ANALYSIS

LAND USE

Similar to the project, the Off-site Alternative would require a general plan amendment to change the land use designation for the project site from Commercial Mixed Use (CMU) to General Commercial (GC), and a zoning amendment to change project site zoning to C-G (General Commercial). After approval of these amendments, the project would be consistent with the City's land use and zoning designations. The off-site alternative location does not currently support an established community. As such, this alternative would result in less-than-significant impacts related to the division of an established community similar to the project. *[Similar]*

AGRICULTURAL RESOURCES

This alternative would result in the same impacts associated with development of Important Farmland because this off-site alternative consists of lands designated by the Department of Conservation, Farmland Mapping and Monitoring Program as Farmland of Statewide Importance. Mitigation would be provided through participation in the City of Manteca Agricultural Mitigation Fee Program, which would result in agricultural land being preserved elsewhere in the County. However, these mitigation measures would not be sufficient to reduce the impacts to less-than-significant levels. Therefore, these impacts are considered significant and unavoidable. The Off-site Alternative would result in the same farmland conversion impacts as the project and would not avoid or reduce the significant and unavoidable impacts of the project. *[Similar]*

VISUAL

Under the Off-site Alternative, there would be the same type of land use alteration as the project because agricultural lands would be converted to urban land uses. Similar to the project, the impact to the visual character of the site would be identified as significant and unavoidable. Lighting would be similarly changed under this alternative, but lighting impacts were identified as less-than-significant project and cumulative impacts. Overall, aesthetic resources impacts would be the same under this alternative for the reasons described above. *[Similar]*

AIR QUALITY

Both the Off-site Alternative and the project would result in development of large areas of land with commercial land uses and the generation of associated construction- and operations-related air emissions. This alternative would produce same vehicle trips as the project because the same number of commercial uses would be developed. Overall air emissions would be the same under the Off-site Alternative because of the similar development and vehicle trips. Less-than-significant air quality impacts identified for the project related to odors and local mobile source carbon monoxide (CO) concentrations would be the same under this alternative.

Impacts associated with construction-related emissions, stationary and mobile source TAC emissions and odors would be reduced to less than significant after mitigation, and long-term regional emissions are considered significant and unavoidable under the project, although mitigation measures would substantially lessen this impact, and would be the same with the Off-site Alternative. Therefore, this alternative would not eliminate the project's significant unavoidable air quality impact and impacts would be similar to the project. *[Similar]*

NOISE

Both the project and Off-site Alternative would result in significant and unavoidable impacts related to temporary noise generated by construction activities and single-event noise and stationary noise at adjacent land uses. After mitigation, under both scenarios, residual significant noise impacts would remain. The Off-site Alternative would not avoid these significant and unavoidable impacts, and would result in similar impacts relative to the project. *[Similar]*

BIOLOGICAL RESOURCES

Both the project and the Off-site Alternative would develop undeveloped land. Biological impacts are generally site specific and depend on the type and quality of habitat that occurs on the site. Both the project site and the proposed location for the Off-site Alternative are approximately 1-mile apart and located in relatively rural areas within the San Joaquin Valley. Similar habitat is expected to be present at both locations. Therefore, it is likely that the Off-site Alternative would result in similar significant and potentially significant impacts on protected trees, common raptors, and special-status birds compared to the project.

Significant and potentially significant biological resources impacts for both the project and the Off-site Alternative would likely be reduced to less-than-significant levels through participation in the SJMSCP. Although it is likely that this alternative would result in similar biological impacts, it is unknown at this time whether any residual significant biological impacts would occur because the site-specific environmental constraints are not known. No significant biological resource impacts were identified for the project after mitigation, so this alternative would not reduce or avoid any significant biological resource impacts of the project. *[Similar]*

HAZARDS AND HAZARDOUS MATERIALS

The project would result in a potentially significant impact related to the use of hazardous materials during project construction and the potential exposure of construction workers to potential sources of hazardous materials during project construction. This impact is considered less than significant after mitigation under the project. Because a similar level of development at a site with similar existing land uses (i.e., rural residential and agriculture) would occur, the Off-site Alternative would result in the same hazards and hazardous materials impact. *[Similar]*

GEOLOGY, SOILS AND SEISMICITY

Under the Off-site Alternative, there would be a similar level of development. Therefore, impacts related to construction erosion and risks from seismic and soil hazards would be the same. This alternative would include the same mitigation measures as the project; therefore, post mitigation impacts would not change (less than significant).

All impacts related to geology and soils are considered less than significant, or less than significant after mitigation under the project. Although geology impacts are generally site specific and are dependant on the type of soils present on site, the proposed location for the Off-site Alternative is located approximately 1-mile from the project site, is within the same regional geologic setting, and would be anticipated to have similar geologic features (i.e., soils, soil erosion hazards) at the site compared to the project. Therefore, this alternative would result in similar less-than-significant geology, soils, and seismicity impacts as the project. *[Similar]*

HYDROLOGY AND WATER QUALITY

Under this alternative, a similar land area would be developed with urban uses and similar stormwater and detention facilities would be constructed. These facilities would be appropriately sized for the level of development proposed, so on-site and off-site impacts (San Joaquin River downstream) would be similar to those of the project, which results in a less-than-significant impact after mitigation. All hydrology and water quality impacts identified for the project are considered less than significant either before or after mitigation. Therefore, the Off-site Alternative would not avoid any significant impacts. This alternative would result in similar stormwater discharges of urban pollutants to downstream water bodies; therefore, this alternative would result in similar hydrology and water quality impacts to the project. *[Similar]*

PUBLIC SERVICES AND UTILITIES

With the Off-site Alternative, impacts to police, wastewater conveyance, stormwater/surface runoff management, and demand for electricity and natural gas would be the same as the project, but, like those of the project, would be less-than-significant. Similarly, impacts on existing utility corridors would be less than significant after mitigation for both the project and Off-site alternative. No significant public services or utilities impacts were identified for the project after mitigation, so this alternative would not reduce or avoid any significant public services or utilities impacts of the project. *[Similar]*

TRANSPORTATION AND CIRCULATION

The Off-site Alternative would result in development of the same acreage of commercial land uses and the same number of traffic trips would be generated. At buildout, the project would result in significant and unavoidable impacts to operation of SR 120. Further, because it cannot be guaranteed at this time that recommended fair-share improvements to reconstruction of the Union Road/State Route 120 interchange, Airport Way/SR 120, and Union Road/SR 120 ramp junction, these impacts would remain significant and unavoidable. Buildout of the project would contribute a higher level of traffic in the project area. Because of the short distance of the Off-site Alternative from these roadways, it is likely that this alternative would adversely affect the operations of many of the same roadways as the project. It is also reasonable to expect that this alternative would have comparable impacts along other local roadways near the proposed Off-site Alternative location.

This alternative would result in the development of a new commercial development that would create demands for public transit services (i.e., bus routes). Demands for bus services would likely be similar to the project under this alternative. Currently, no bus services are provided to the site and would not be provided under this alternative. The only feasible mitigation requires the project applicant to coordinate with the City to ensure that bus transportation services are provided to the project in accordance with City standards, but it is uncertain whether services would be provided. Because the provision of bus transit services to the project site is dependent on actions taken by the City, there is no guarantee that such services would be provided in the future, and this would therefore be a significant and unavoidable impact of both the project and the Off-site Alternative.

Under this alternative, impacts related to roadway congestion from construction traffic, vehicular circulation patterns and site access, impacts to alternative transportation, impacts to emergency vehicle access, and conformity with City parking requirements would likely be the same compared to the project. Overall, it is reasonable to expect that the Off-site Alternative would result in similar transportation impacts compared to the project; however, localized impacts could occur and would be specific to the location of development. *[Similar]*

CULTURAL RESOURCES

Under the project, ground disturbance and development of new structures would occur resulting in significant and potentially significant impacts related to potential disturbance of undiscovered/unrecorded subsurface archaeological sites and human remains. These impacts would be reduced to less-than-significant levels after mitigation. Impacts to unknown archaeological resources would be potentially significant with this alternative and would be similar to those of the project. It is unknown whether previously recorded cultural or archeological resources exist on the site or in the immediate vicinity. This alternative could result in significant impacts to known cultural resources and potentially significant impacts related to previously undiscovered cultural resources. Given the age and history of structures in the City of Manteca in general, this alternative would likely require a historic resources evaluation at the same level as under the proposed project. If structures were found to be eligible under National Register of Historic Places criteria, this would result in a significant impact. It is unknown whether feasible mitigation measures would be available to reduce historic structure impacts to a less-than-significant level. No significant cultural resource impacts were identified for the project after mitigation, so this alternative would not reduce or avoid any significant cultural resource impacts of the project. *[Similar]*

POPULATION, EMPLOYMENT, AND HOUSING

Similar to the project, the Off-site Alternative is anticipated to indirectly result in the relocation of some new residents to the area. This indirect population growth impact is expected to be relatively minor and would not substantially increase the population in the City. In addition, minor population growth resulting from the project would be consistent with growth anticipated in the General Plan. The proposed project and Off-site Alternative would create new jobs that would likely bring the regional jobs-housing index closer to a balanced condition. This is not a significant impact of the project. Therefore, this alternative would not reduce or avoid any significant impacts associated with population, employment, and housing. *[Similar]*

7.5.2 SUMMARY

The Off-site Alternative would result in similar impacts in all 13 resource areas. Significant unavoidable impacts related to agricultural resources, aesthetic resources, air quality, noise and traffic associated with the project would also occur under this alternative.

7.6 ALTERNATIVES PREVIOUSLY CONSIDERED AND REJECTED

State CEQA Guidelines Section 15126.6(c) provides that an EIR "should also identify any alternatives that were considered by the lead agency but rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination."

The lead agency considered an alternative that would increase the density of the development on-site, resulting in increased commercial square footage. This alternative would achieve the project's objectives relating to provision of employment opportunities and maximization of financial benefits to the surrounding community. However, implementation of this alternative would result in substantially greater traffic, air quality, and noise impacts, most of which are already significant and unavoidable under the project as proposed. Therefore, this alternative would not fulfill the intended purpose of an alternatives analysis, which is to reduce or substantially lessen the significant impacts of the project, and was rejected from further consideration in this DEIR.

No additional alternatives to the project were brought forth during the scoping process.

7.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The State CEQA Guidelines require identification of an environmentally superior alternative. If the No Project Alternative is environmentally superior, CEQA requires selection of the "environmentally superior alternative other than the no project alternative" from among the project and the alternatives evaluated.

Table 7-1 identifies whether each of the three alternatives would have "greater," "less," or "similar" impacts as the project for each of the 13 environmental issues evaluated in this DEIR. The No Project Alternative – No Development would have greater impacts than the project in 1 issue area, lesser impacts in 8, and similar impacts in 4 issue areas. The Mitigated Design Alternative would have greater impacts than the project in 1 issue area, lesser impacts in 5, and similar impacts in 7 issue areas. The No Project Alternative – Current Entitlement and Off-site Alternative would have similar impacts to the project in all issue areas.

Based on the listing of lesser and greater impacts as identified in Table 7-1, the No Project Alternative – No Development would appear to be the environmentally superior alternative. The project would result in significant and unavoidable impacts in 5 resource areas: agricultural resources, visual resources, air quality, noise, and transportation. The No Project Alternative – No Development, by comparison would not result in any significant and unavoidable impacts. It would have greater impacts than the project with respect to water quality (associated with stormwater runoff from agricultural activities). Nevertheless, because it would not result in any significant and unavoidable impacts, it is the environmentally superior alternative and it is superior to all other alternatives considered.

Table 7-1
Comparison of the Impacts of the Project to Those of the Alternatives*

Environmental Issues	Alternatives			
	No Project – No Development	No Project – Current Entitlement	Mitigated Design	Off-site
Land Use	Similar	Similar	Similar	Similar
Agricultural Resources	Less	Similar	Less	Similar
Visual Resources	Less	Similar	Similar	Similar
Air Quality	Less	Similar	Less	Similar
Noise	Less	Similar	Less	Similar
Biological Resources	Less	Similar	Less	Similar
Hazards and Hazardous Materials	Similar	Similar	Similar	Similar
Geology, Soils, and Seismicity	Similar	Similar	Similar	Similar
Hydrology and Water Quality	Greater	Similar	Greater	Similar
Public Services and Utilities	Less	Similar	Similar	Similar
Transportation	Less	Similar	Less	Similar
Cultural Resources	Less	Similar	Similar	Similar
Population and Housing	Similar	Similar	Similar	Similar
Totals				
Greater Impacts	1	0	1	0
Lesser Impacts	8	0	5	0

* For each environmental issue, the alternative is compared to the project based on the level of severity of impacts (greater, less, similar).
Source: EDAW 2009

By comparison, the Mitigated Design Alternative would reduce, but not to a less-than-significant level, most of the project's significant and unavoidable impacts related to agricultural resources, conflicts between urban and agricultural land uses, air quality, noise, and transportation. While for most resource areas environmental impacts would be similar, this alternative would achieve the objective of substantially reducing the project's significant and unavoidable impacts. For these reasons, the Mitigated Design Alternative is environmentally superior to the project.

The environmental effects of the Off-Site Alternative would be comparable to the project, because it would result in the same level of development on a substantially similar site and the same levels of construction and operational impacts (i.e., air quality, noise, traffic, biological resources). This alternative would not reduce or eliminate the project's listed significant and unavoidable impacts. Overall, this alternative would be environmentally similar to the project.

Finally, for the reasons described above, the No Project Alternative – Current Entitlement would result in substantially similar environmental impacts as the project. This alternative would not reduce or eliminate the project's listed significant and unavoidable impacts. Overall, this alternative would be environmentally similar to the project.

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