Draft
Environmental Impact Report
for
Evans Estates–Pillsbury Estates Project

SCH #2007112019

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Acronyms and Abbreviations

µg/m^3	per cubic meter
µmhos/cm	micromhos per centimeter
AB	Assembly Bill
ACBM	asbestos containing building material
ACE	Altamont Commuter Express
ADAM	Aerometric Data Analysis and Management System
ADT	average daily traffic
afa	acre-foot per acre
AG-40	General Agriculture with a minimum parcel size of 40 acres
AGE	Advanced GeoEnvironmental, Inc.
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
AM	morning
ARB	California Air Resources Board
AST	above-ground storage tank
ASTM	American Society of Testing and Materials
basin plans	water quality control plans
BAT	best available technology
bgs	below ground surface
BLD	Big League Dreams
BMPs	best management practices
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CCIC	Central California Information Center
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act

CESA	California Endangered Species Act
CFCP	California Farmland Conservancy Program
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGC	California Government Code
CGS	California Geological Survey
CHP	California Highway Patrol
City	City of Manteca
City General Plan	*City of Manteca General Plan 2023*
CIWMB	California Integrated Waste Management Board
CIWMP	Countywide Integrated Waste Management Plan
CMP	Congestion Management Plan
CMU	Commercial Mixed Use
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNG	compressed natural gas
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
County	San Joaquin County
County General Plan	San Joaquin County General Plan 2010
CPRR	Central Pacific Railroad
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CWA	federal Clean Water Act
CWC	California Water Code
dB	decibel
dBA	A-weighted decibel
DBCP	dibromochloropropane
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DOC	California Department of Conservation
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DUE	dwelling unit equivalent
EB	eastbound
EC	electromagnetic conductivity

EDH	Environmental Health Department
EDR	Environmental Data Resources, Inc.
EIR	environmental impact report
EMTs	Emergency Medical Technicians
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FCOC	French Camp Outlet Canal
FESA	federal Endangered Species Act
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FTA	Federal Transit Administration
General Construction Permit	NPDES General Permit for Construction Activities
General Permit	General Permit for Stormwater Discharges Associated with Construction Activity
General Plan EIR	Manteca General Plan Draft Environmental Impact Report
GHG	greenhouse gas
gpm	gallons per minute
HCM	*Highway Capacity Manual*
HCP	habitat conservation plan
HCS+	*Highway Capacity Software* analysis software
HDR	high-density residential
Hz	hertz
I	Interstate
IPCC	Intergovernmental Panel on Climate Change
IS	initial study
ISAC	Invasive Species Advisory Committee
ISR	Indirect Source Review
LAFCo	Local Agency Formation Commission
L_{DN}	day-night level
LDR	low-density residential
L_{eq}	equivalent sound level
L_{max} and L_{min}	maximum and minimum sound levels
LMFPD	Lathrop-Manteca Fire Protection District
L_n	sound level percentiles
LOS	level of service

LPG	liquid propane gas
MAX	Modesto Area Express
MBTA	federal Migratory Bird Treaty Act
MDR	medium-density residential
MFD	Manteca Fire Department
mg/L	milligrams per liter
mgd	million gallons per day
MPD	Manteca Police Department
mph	miles per hour
MS4	Municipal Separate Storm Sewer System
MUSD	Manteca Unified School District
MUTCD	Manual on Uniform Traffic Control Devices
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NB	northbound
NCCP	natural communities conservation plan
NISC	National Invasive Species Council
NO_2	nitrogen dioxide
NOAA Fisheries	National Marine Fisheries Service
NOI	notice of intent
NOP	notice of preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
pc/mi/ln	passenger car equivalents per mile per lane
PCBs	polychlorinated biphenyls
PCC	Portland cement concrete
PFIP	Public Facilities Implementation Plan
PG&E	Pacific Gas & Electric Company
Phase I ESA	Phase I environmental site assessment
Phase II LSA	Phase II Limited Soils Assessment
PM	evening
PM10	particulate matter 10 microns or less in diameter

PM2.5	particulate matter smaller than 2.5 microns or less in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	parts per million
PPMP	pollution prevention and monitoring program
PRC	Public Resources Code
proposed project	Evans Estates–Pillsbury Estates Project
PSR	Project Study Report
RCRA	Resource Conservation and Recovery Act
RECs	recognized environmental conditions
ROGs	reactive organic gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	southbound
SCSWSP	South County Surface Water Supply Project
SIPs	State Implementation Plans
SJCOG	San Joaquin Council of Governments
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
SJRTD	San Joaquin Regional Transit District
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMTS	South Manteca Trunk Sewer
SO_2	sulfur dioxide
SOI	sphere of influence
SPRR	Southern Pacific Railroad
SR	state route
SSJID	South San Joaquin Irrigation District
Superfund	Comprehensive Environmental Response, Compensation, and Liability Act
SVP	Society of Vertebrate Paleontology
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TCMs	traffic control measures
TDF	travel demand forecasting
TMDL	total maximum daily load
TNM	Federal Highway Administration Traffic Noise Model

	Version 2.5
UBC	Uniform Building Code
UCMP	University of California Museum of Paleontology
ULSD	ultra-low-sulfur diesel
UPRR	Union Pacific Railroad
UR-LDR	Urban Reserve-LDR
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UV	ultraviolet
V/C	volume-to-capacity
VMT	vehicle miles travelled
VOCs	volatile organic compounds
WB	westbound
WQCF	Manteca Wastewater Quality Control Facility
WSA	Evans Estates and Pillsbury Estates Water Supply Assessment/Verification

Executive Summary

Introduction

This environmental impact report (EIR) analyzes the environmental impacts of the proposed Evans Estates–Pillsbury Estates Project (proposed project), identifies mitigation measures to minimize potential significant impacts, and evaluates reasonable alternatives to the proposed project, including a required no-project alternative. This EIR also discloses the proposed project's significant environmental impacts that cannot be avoided, growth-inducing impacts, impacts found not to be significant (i.e., less than significant), and significant cumulative impacts.

An EIR is a public, informational document used in the planning and decision-making process. The purpose of an EIR is not to recommend approval or denial of a project, but to provide information to aid in the decision-making process. Although the EIR does not control the ultimate decision on the proposed project, the City of Manteca (City), as the lead agency, must consider the information in the EIR and respond to each significant impact identified in the EIR.

The California Environmental Quality Act (CEQA) requires that the City prepare an EIR that reflects the independent judgment of the City regarding the impacts of the project, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to avoid or reduce the impacts.

Project Description

This EIR examines the proposed project, which includes the construction of two residential subdivisions: Evans Estates and Pillsbury Estates. The proposed project would require the City's approval of the following entitlements:

- prezoning,
- annexation to the City,
- detachment from the Lathrop-Manteca Fire Protection District,
- a development agreement,

- a vesting tentative map for residential development of the Pillsbury Estates site, and
- a tentative map for the residential development of the Evans Estates site.

The project site is approximately 240 acres. The Evans Estates site is 160 acres and the Pillsbury Estates site is 80 acres. The project site is in San Joaquin County south of the Manteca city limits.

Under the proposed project, one of the two existing single-family homes on the Evans Estates site would be removed; the one existing single-family home on the Pillsbury Estates site would remain. At full build-out, the two proposed developments would result in 861 new single-family homes, in addition to the two existing single-family homes that would remain on the project site.

Alternatives

The City considered four alternatives in its initial screening of alternatives to analyze in this EIR.

- Alternative 1: Alternative Site
- Alternative 2: Reduced Density
- Alternative 3: Reduced Footprint
- Alternative 4: Commercial Mixed Use Alternative
- Alternative 5: Alternative Tentative Map for Evans Estates and Pillsbury Estates
- Alternative 6: No-Project

Following the initial screening, Alternatives 1, 2, and 3 were found to either not meet project objectives or not offer a substantial reduction in the potential project impacts. Therefore, they were not analyzed further. Alternatives 4, 5, and 6 were carried forward and considered in this EIR. Chapter 14, "Alternatives," presents a description of the alternatives and compares the impacts of the alternatives with those of the proposed project.

Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) requires that an EIR identify the environmentally superior alternative. If the No-Project Alternative is the environmentally superior alternative, the EIR must also identify which of the other alternatives is environmentally superior. Based on the discussion presented in Chapter 14, "Alternatives," the No-Project Alternative would be the environmentally superior alternative. Therefore, the environmentally superior alternative among the remaining alternatives must also be identified.

Based on the comparison presented in Chapter 14, "Alternatives," Alternative 5 would be the environmentally superior alternative because it would reduce impacts related to anticipated LOS or trips generated, while meeting project objectives. However, this alternative would result in potential conflicts with the *City of Manteca General Plan 2023* (City General Plan) goals and policies related to community design, land use, agricultural resources (City of Manteca 2003). Because Alternative 5 would develop fewer housing units on the same footprint as the proposed project, it could also result in impacts related to sprawl and additional cumulative impacts to agricultural lands if it causes the City to seek other developable lands in and around the Manteca and San Joaquin County to meet its housing goals.

Impacts and Mitigation Measures

Chapters 3 through 12 of this document present analysis of the potential impacts of the proposed project for each of the resource subjects required by CEQA that were not shown in the initial study (IS) to be less than significant. Growth-inducing and cumulative impacts are analyzed in Chapter 13, "Other CEQA Considerations." Table ES-1 provides a summary of the environmental impacts of the proposed project, including the significance of each impact before mitigation, appropriate mitigation measures, and the significance of each impact based on the planned implementation of the mitigation measures. Following, is a summary of impacts analyzed in the initial study but found to be less than significant and a summary of impacts analyzed in this EIR with their significance conclusions (i.e., no impact, less than significant, less than significant with mitigation, or significant and unavoidable).

Impacts Found to Be Less than Significant in the Initial Study

Analysis in the IS found that the proposed project would have no impact or a less-than-significant impact on aesthetics, special status-plants, riparian habitat, wetlands, migratory fish and wildlife, mineral resources, population and housing, and solid waste. Therefore, these issues are not further addressed in this EIR.

Impacts Analyzed in the Environment Impact Report

No Impact

Based on the analysis in this EIR, the proposed project would have no impact on the following areas:

- **Agriculture:** Conflict with a Williamson Act Contract; Other Changes in the Existing Environment That, Due to Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use

- **Land Use:** Physical Division of an Established Community.
- **Cultural Resources:** Disturbance or Destruction of Significant Historic Resources.
- **Hazardous Materials:** Significant Hazard from Location on a Site that Is Included on a List of Hazardous Materials Sites; Potential Impairment or Interference with an Adopted Emergency Response Plan; Potential Exposure of People or Structures to Risk from Wildfires; and Located within an Airport Land-Use Plan Area or within 2 Miles of an Existing Airport.

Less than Significant

Based on the analysis in this EIR, the proposed project would have a less-than-significant impact on the following areas.

- **Air Quality:** Elevated Health Risk from the Exposure of Nearby Sensitive Receptors to Diesel Particulate Matter; Exposure of Sensitive Receptors to Substantial Concentrations of Carbon Monoxide; and Increase in Greenhouse Gas Contaminant Emissions.
- **Geology:** 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; Potential for Increased Exposure of People or Structures to Hazards Related to Strong Seismic Groundshaking; Potential for Increased Exposure of People or Structures to Hazards Related to Liquefaction and Ground Failure; Potential for Increased Exposure of Persons or Structures to Landslide Hazards; Location on a Geologic Unit or Soil that is Unstable or that Would Become Unstable as a Result of Construction; Location on Expansive Soils
- **Hazardous Materials:** Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Operation; Potential Exposure of School Children to Hazardous Materials;
- **Hydrology:** Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies; Impacts on Flood Flows from Structures in 100 Year Floodplain or Impacts on Housing from Placement in a 100 Year Floodplain; Flood Hazards associated with Levee or Dam Failure; Decrease in Groundwater Recharge; Substantial Depletion of Groundwater Supplies; and Impacts on Groundwater and Surface Water from Infrastructure Failure.
- **Land Use:** Incompatibility with Existing or Future Land Uses.
- **Noise and Vibration:** Exposure of Future Noise-Sensitive Land Uses on the Project Site to Traffic Noise; and Exposure of Noise-Sensitive Land Uses to Vibration and Noise and During Construction Activities.
- **Transportation:** Increased Demand for Pedestrian Travel.
- **Utilities and Service Systems:** Provision of Parks and Recreational Facilities; Temporary Construction-Related Impacts on Access Routes and Reduced Response Times for Police, Fire, and Emergency Services;

Operational Impacts on Police Services, Including Inadequate Service Ratios and Response Times; Operational Impacts on Fire Services, Including Inadequate Service Ratios, Response Times, and Water Pressure and Supply for Fire Suppression; Inadequate Service Ratios at Schools Serving the Project Site; Expansion or Construction of New Wastewater Collection, Conveyance, or Treatment Facilities; Inadequate Energy Sources and Infrastructure.

- **Growth Inducement:** Fosters Economic or Population Growth or Additional Housing.

Less than Significant with Mitigation

Based on the analysis in this EIR, the proposed project would have significant impacts on the following areas, which would be reduced to a less-than-significant level through the implementation of mitigation measures.

- **Land Use:** Conflict with an Applicable Local Habitat Conservation Plan or Natural Community Conservation Plan.
- **Air Quality:** Generation of Emissions of ROG and NOx in Excess of SJVAPCD Thresholds.
- **Biological Resources:** Potential Introduction or Spread of Invasive Species; Impacts on Nesting Swainson's Hawk and Non-Special-Status Migratory Birds; Loss of Swainson's Hawk Foraging Habitat; Loss of Potential Foraging Habitat for Other Special-Status Birds; Impacts on Western Burrowing Owl; and Impacts on Roosting Bats.
- **Cultural Resources:** Potential Destruction of Buried Archeological Resources; and Destruction or Disturbance of Human Remains.
- **Geology, Soils, and Paleontology:** Contribution to Substantial Soil Erosion or Loss of Topsoil; and Damage to Paleontological Resources.
- **Hazards and Hazardous Materials:** Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Construction; ; and Potential Hazard to the Public or the Environment through Upset or Accident Conditions .
- **Hydrology and Water Quality:** Impacts on Water Quality as a Result of Construction-Related Earth-Disturbing Activities; Water Quality Impacts as a Result of Construction-Related Hazardous Materials; Water Quality Impacts from Construction below the Water Table; Change in Drainage Patterns and Surface Runoff; Increased Amounts of Surface Runoff and Associated Impacts on Water Quality and Drainage Facilities during Operation; and Insufficiency of Water Supply.
- **Traffic and Transportation:**
  - Degradation of Intersection Operations from Increased Traffic at Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union

Road/SR 120 EB Ramps, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, and Main Street/Yosemite Avenue;

- Increased Demand for Bicycle Travel;
- Degradation of Roadway Segment Operations from Increased Traffic at Main Street, Between SR 120 WB Ramps and SR 120 EB Ramps, Between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; Union Road, between SR 120 WB Ramps and SR 120 EB Ramps, between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; and Woodward Avenue, between Union Road and Main Street; and
- Degradation of Intersection Operations from Increased Traffic at Main Street/SR 120 WB Ramps, Main Street/SR 120 EB Ramps, Main Street/Atherton Drive, Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Union Road/Atherton Drive, Union Road/Woodward Avenue, Airport Way/Daniels Street, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, Airport Way/Atherton Drive, Airport Way/Woodward Avenue, and Woodward Avenue/Moffat Boulevard

- **Utilities and Service Systems:** Temporary, Planned, or Accidental Construction-Related Disruptions to Utility Services.
- **Cumulative Impacts:** Cumulative Effect on Air Quality.

Significant and Unavoidable

Significant project impacts that would not be reduced to a less-than-significant level through mitigation (i.e., significant and unavoidable impacts) are listed below.

- **Agriculture:** Direct Conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Other Farmland to Nonagricultural Use
- **Air Quality:** Cumulative Increase in Greenhouse Gas Contaminant Emissions (Significant and Unavoidable).
- **Noise:** Exposure of Existing Noise-Sensitive Land Uses on Project Approach Roadways to Increased Traffic Noise.
- **Traffic and Transportation:**
  - Impacts on the Transit System;
  - Degradation of Roadway Segment Operations from Increased Traffic at Moffat Boulevard, Between SR 99 SB Off Ramp and Austin Road, and Austin Road, Between SR 99 NB Ramps and Moffat Boulevard
  - Degradation of Intersection Operations from Increased Traffic at Woodward Avenue/Moffat Boulevard, Moffat Boulevard/SR 99 SB Off-

Ramp, Moffat Boulevard/ Austin Road/SR 99 SB On-Ramps, Austin Road/SR 99 NB Ramps, and Main Street/Yosemite Avenue;

- Degradation of Freeway Mainline Operations from Increased Traffic at SR 120 EB from Yosemite Avenue to Airport Way, Airport Way to Union Road, Union Road to Main Street, and Main Street to SR 99; SR 120 WB from SR 99 to Main Street, Main Street to Union Road, Union Road to Airport Way, Airport Way to Yosemite Avenue; SR 99 NB from Jack Tone Road to Austin Road, Austin Road to SR 120 (Weaving Section), and SR 120 to Yosemite Avenue (Weaving Section); and SR 99 SB from Yosemite Avenue to SR 120 (Weaving Section), SR 120 to Austin Road, and Austin Road to Jack Tone Road; and
- Degradation of Freeway Ramp Junction Operations from Increased Traffic at SR 120 EB (Main Street Off-Ramp and Main Street On-Ramp); SR 120 WB (Main Street Off-Ramp and Main Street On-Ramp); SR 99 NB (Austin Road Off-Ramp and Austin Road On-Ramp); and SR 99 SB (Austin Road/Moffat Boulevard Off-Ramp and Austin Road/Moffat Boulevard On-Ramp).

- **Cumulative Impacts:** Cumulative Loss of Agricultural Lands; and Cumulative Increase in Greenhouse Gas Contaminant Emissions.

Areas of Known Controversy and Unresolved Issues

CEQA Guidelines Section 15123(b) requires that the summary section of the EIR include a description of areas of controversy known to the lead agency, including issues raised by agencies and the public as well as issues to be resolved. No known areas of controversy have been identified for the proposed project.

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact AG-1: Direct Conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Other Farmland to Nonagricultural Use	Significant and Unavoidable	Mitigation Measure AG-1: Pay Agricultural Mitigation Fee	Significant and Unavoidable
Impact AG-2: Conflict with a Williamson Act Contract	No Impact	—	—
Impact AG-3: Other Changes in the Existing Environment That, Due to Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use	No Impact	—	—
Impact AQ-1: Generation of Emissions of ROG and NO_x in Excess of SJVAPCD Thresholds	Significant	Mitigation Measure AQ-1a: Prepare and Implement a Dust Control Plan	Less than Significant
		Mitigation Measure AQ-1b: Implement Measures to Reduce Construction Emissions	—
		Mitigation Measure AQ-1c: Implement Measures to Comply with SJVAPCD Rule 9510, Indirect Source Review	—
		Mitigation Measure AQ-1d: Enter into a Development Mitigation Contract	—
		Mitigation Measure AQ-1e: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts	—
Impact AQ-2: Elevated Health Risk from the Exposure of Nearby Sensitive Receptors to Diesel Particulate Matter	Less than Significant	—	—
Impact AQ-3: Exposure of Sensitive Receptors to Substantial Concentrations of Carbon Monoxide	Less than Significant	—	—

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact AQ-4: Increase in Greenhouse Gas Contaminant Emissions	Less than Significant	—	—
Impact AQ-5: Contribution to a Cumulative Increase in Greenhouse Gas Contaminant Emissions	Significant	Mitigation Measure CE-3: Implement City of Manteca General Plan Policies for Energy Conservation	Significant and Unavoidable
Impact BIO-1: Potential Introduction or Spread of Invasive Species	Significant	Mitigation Measure BIO-1: Avoid the Dispersal of Noxious Weeds into Uninfested Areas	Less than Significant
Impact BIO-2: Impacts on Nesting Swainson's Hawk and Non-Special-Status Migratory Birds	Significant	Mitigation Measure BIO-2: Conduct Tree Removal and Barn Demolition Activities during Nonbreeding Season for Swainson's Hawk and Non-Special-Status Migratory Birds and Raptors, or Conduct Nesting Bird Survey Prior to Tree and Barn Removal Activities	Less than Significant
Impact BIO-3: Loss of Swainson's Hawk Foraging Habitat	Significant	Mitigation Measure BIO-3: Compensate for Loss of Foraging Habitat for Swainson's Hawk and Burrowing Owl as Outlined in the SJMSCP	Less than Significant
Impact BIO-4: Loss of Potential Foraging Habitat for Other Special-Status Birds	Significant	Mitigation Measure BIO-3: Compensate for Loss of Foraging Habitat for Swainson's Hawk and Burrowing Owl as Outlined in the SJMSCP	Less than Significant
Impact BIO-5: Impacts on Western Burrowing Owl	Significant	Mitigation Measure BIO-5a: Conduct Preconstruction Survey and Adhere to CDFG Guidelines Mitigation Measure BIO-5b: Avoid and Minimize Impacts on Nesting Burrowing Owl Mitigation Measure BIO-3: Compensate for Loss of Foraging Habitat for Swainson's Hawk and Burrowing Owl as Outlined in the SJMSCP	Less than Significant

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact BIO-6: Impacts on Roosting Bats	Significant	Mitigation Measure BIO-6: Conduct Preconstruction Survey and Remove Barn during Non-breeding Season	Less than Significant
Impact CR-1: Potential Destruction of Buried Archeological Resources	Significant	Mitigation Measure CR-1: Stop Work in Case of Accidental Discovery of Buried Archeological Resources	Less than Significant
Impact CR-2: Destruction or Disturbance of Human Remains	Significant	Mitigation Measure CR-2: Stop Work in Case of Accidental Discovery of Buried Human Remains	Less than Significant
Impact CR-3: Disturbance or Destruction of Significant and Historic Resources	Significant		No Impact
Impact GEO-1: 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	Less than Significant	—	—
Impact GEO-2: Potential for Increased Exposure of People or Structures to Hazards Related to Strong Seismic Groundshaking	Less than Significant	—	—
Impact GEO-3: Potential for Increased Exposure of People or Structures to Hazards Related to Liquefaction and Ground Failure	Less than Significant	—	—
Impact GEO-4: Potential for Increased Exposure of Persons or Structures to Landslide Hazards	Less than Significant	—	—
Impact GEO-5: Contribution to Substantial Soil Erosion or Loss of Topsoil	Significant	Mitigation Measure GEO-5: Stockpile Excavated Topsoil for Onsite Reuse.	Less than Significant
Impact GEO-6: Location on a Geologic Unit or Soil that is Unstable or that Would Become Unstable as a Result of Construction	Less than Significant	—	—
Impact GEO-7: Location on Expansive Soils	Less than Significant	—	—

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact GEO-8: Damage to Paleontological Resources	Significant	Mitigation Measure GEO-8a: Evaluate Site-Specific Impact Potential	Less than Significant
		Mitigation Measure GEO-8b: Conduct Preconstruction Survey, Salvage, and Protection in Areas of Exposed Pleistocene Substrate	—
		Mitigation Measure GEO-8c: Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities	—
		Mitigation Measure GEO-8d: Stop Work if Vertebrate Remains are Encountered during Construction	—
Impact HAZ-1: Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Operation	Less than Significant	—	—
Impact HAZ-2: Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Construction	Significant	Mitigation Measure HAZ-2a: Screen Surface Soils on Evans Estates Site for Residuals from Agricultural Chemicals and Other Hazardous Materials	Less than Significant
		Mitigation Measure HAZ-2b: Properly Remove Hazardous Materials and Hazardous Material Containers from the Project Site	—
		Mitigation Measure HAZ-2c: Prepare an Asbestos and Lead Paint Survey Report and Properly Dispose of Asbestos and Lead Paint by Certified Asbestos Abatement Contractor and Certified Lead Inspector/Assessor	—
		Mitigation Measure HAZ-2d: Notify Contractors of Presence of Asbestos and Lead Paint	—

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
		Mitigation Measure HAZ-2e: Properly Abandon Septic Systems	—
Impact HAZ-3: Potential Hazard to the Public or the Environment through Upset or Accident Conditions	Significant	Mitigation Measure HAZ-3: Develop and Implement Plans to Reduce Exposure to Hazardous Conditions	Less than Significant
Impact HAZ-4: Potential Exposure of School Children to Hazardous Materials	Less than Significant	—	—
Impact HAZ-5: Significant Hazard from Location on a Site that Is Included on a List of Hazardous Materials Sites	No Impact	—	—
Impact HAZ-6: Potential Impairment or Interference with an Adopted Emergency Response Plan	No Impact	—	—
Impact HAZ-7: Potential Exposure of People or Structures to Risk from Wildfires	No Impact	—	—
Impact HAZ-8: Located within an Airport Land-Use Plan Area or within 2 Miles of an Existing Airport	No Impact	—	—
Impact HYD-1: Impacts on Water Quality as a Result of Construction-Related Earth-Disturbing Activities	Significant	Mitigation Measure HYD-1a: Comply with NPDES Requirements	Less than Significant
		Mitigation Measure HYD-1b: Clean Paved Areas with Street Sweeping Equipment	—
Impact HYD-2: Water Quality Impacts as a Result of Construction-Related Hazardous Materials	Significant	Mitigation Measure HYD-2: Implement a Spill Prevention and Control Program	Less than Significant
Impact HYD-3: Water Quality Impacts from Construction below the Water Table	Significant	Mitigation Measure HYD-3: Implement Provisions for Dewatering	Less than Significant
Impact HYD-4: Change in Drainage Patterns and Surface Runoff	Significant	Mitigation Measure HYD-4: Prepare a Master Drainage Plan	Less than Significant

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact HYD-5: Increased Amounts of Surface Runoff and Associated Impacts on Water Quality and Drainage Facilities during Operation	Significant	Mitigation Measure HYD-5: Implement Best Management Practices to Maximize Stormwater Quality	Less than Significant
Impact HYD-6: Decrease in Groundwater Recharge	Less than Significant	—	—
Impact HYD-7: Substantial Depletion of Groundwater Supplies	Less than Significant	—	—
Impact HYD-8: Insufficiency of Water Supply	Significant	Mitigation Measure HYD-8: Impose Condition Requiring Water Supply Improvements Tied to Number of Building Permits	Less than Significant
Impact HYD-9: Impacts on Groundwater and Surface Water from Infrastructure Failure	Less than Significant	—	—
Impact HYD-10: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies	Less than Significant	—	—
Impact HYD-11: Impacts on Flood Flows from Structures in 100-Year Floodplain or Impacts on Housing from Placement in a 100-Year Floodplain	Less than Significant	—	—
Impact HYD-12: Flood Hazards associated with Levee or Dam Failure	Less than Significant	—	—
Impact LU-1: Physical Division of an Established Community	No Impact	—	—
Impact LU-2: Incompatibility with Existing or Future Land Uses	Less than Significant	—	—
Impact LU-3: Conflict with an Applicable Local Habitat Conservation Plan or Natural Community Conservation Plan	Less than Significant with Mitigation	Mitigation Measure BIO-3: Compensate for Loss of Foraging Habitat for Swainson's Hawk and Burrowing Owl as Outlined in the SJMSCP	Less than Significant

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact NOI-1: Exposure of Noise-Sensitive Land Uses to Vibration and Noise and During Construction Activities	Less than Significant	—	—
Impact NOI-2: Exposure of Existing Noise-Sensitive Land Uses on Project Approach Roadways to Increased Traffic Noise	Significant	None feasible	Significant and unavoidable
Impact NOI-3: Exposure of Future Noise-Sensitive Land Uses on the Project Site to Traffic Noise	Less than Significant	—	—
Impact TRA-1: Degradation of Intersection Operations from Increased Traffic at Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, and Main Street/Yosemite Avenue	Significant	Mitigation Measure TRA-1a: Main Street/Woodward Avenue—Install a Traffic Signal Mitigation Measure TRA-1b: Union Road/SR 120 WB Ramps—Install a Traffic Signal and Add WB Right-Turn Lane Mitigation Measure TRA-1c: Union Road/SR 120 EB Ramps—Install a Traffic Signal and EB Right-Turn Lane Mitigation Measure TRA-1d: Airport Way/SR 120 WB Ramps—Install a Traffic Signal and WB Right-Turn Lane Mitigation Measure TRA-1e: Airport Way/SR 120 EB Ramps—Install a Traffic Signal and EB Right-Turn Lane	Less than Significant

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
		Mitigation Measure TRA-1f: Main Street/Yosemite Avenue—Amend City General Plan to Exempt the Intersection from the City LOS Threshold or Pay City to Retime Traffic Signal and Monitor Intersection Operations	
Impact TRA-2: Increased Demand for Bicycle Travel	Significant	Mitigation Measure TRA-2: Construct Class II Bicycle Lanes on Selected Streets	Less than Significant
Impact TRA-3: Increased Demand for Pedestrian Travel	Less than Significant	—	—
Impact TRA-3: Increased Demand for Pedestrian Travel	Less than Significant	—	—
Impact TRA-4: Impacts on the Transit System	Significant	Mitigation Measure TRA-4: Coordinate with City and Manteca Transit to Facilitate Future Transit Service in the Area	Significant and Unavoidable
Impact TRA-5a: Degradation of Roadway Segment Operations from Increased Traffic at Main Street, Between SR 120 WB Ramps and SR 120 EB Ramps, Between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; Union Road, between SR 120 WB Ramps and SR 120 EB Ramps, between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; and Woodward Avenue, between Union Road and Main Street	Significant	Mitigation Measure TRA-5a: Main Street between the SR 120 EB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Main Street/SR 120 Mitigation Measure TRA-5b: Main Street between SR 120 EB Ramps and Woodward Avenue—Pay Fair-Share Contribution to Widen Main Street to Six Lanes	Less than Significant

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
		Mitigation Measure TRA-5c: Union Road between SR 120 WB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Union Road/SR 120	
		Mitigation Measure TRA-5d: Union Road between SR 120 EB Ramps and Woodward Avenue—Pay Fair-Share Contribution to Widen Union Road to Six Lanes	
		Mitigation Measure TRA-5e: Woodward Avenue between Union Road and Main Street—Pay Fair-Share Contribution to Widen Woodward Avenue to Four Lanes	
Impact TRA-5b: Degradation of Roadway Segment Operations from Increased Traffic at Moffat Boulevard, Between SR 99 SB Off Ramp and Austin Road, and Austin Road, Between SR 99 NB Ramps and Moffat Boulevard	Significant	Mitigation Measure TRA-5f: Moffat Boulevard between Woodward Avenue and Austin Road—Pay Fair-Share Contribution to Reconstruct the SR 99/Austin Road Interchange	Significant and Unavoidable
Impact TRA-6a: Degradation of Intersection Operations from Increased Traffic at Main Street/SR 120 WB Ramps, Main Street/SR 120 EB Ramps, Main Street/Atherton Drive, Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Union Road/Atherton Drive, Union Road/Woodward Avenue, Airport Way/Daniels Street, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, Airport Way/Atherton Drive, Airport Way/Woodward Avenue, and Woodward Avenue/Moffat Boulevard	Significant	Mitigation Measure TRA-5a: Main Street between the SR 120 EB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Main Street/SR 120	Less than Significant
		Mitigation Measure TRA-6a: Main Street/Atherton Drive—Pay Fair-Share Contribution to Improve the Intersection	
		Mitigation Measure TRA-6b: Main Street/Woodward Avenue—Pay Fair-Share Contribution to Improve the Intersection	

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
		Mitigation Measure TRA-6c: Union Road/Woodward Avenue—Pay Fair-Share Contribution to Improve the Intersection	
		Mitigation Measure TRA-6d: Airport Way/Daniels Street—Pay Fair-Share Contribution for the Construction of a New Interchange at Airport Way/SR 120	
		Mitigation Measure TRA-6e: Airport Way/Atherton Drive—Pay Fair-Share Contribution of Intersection Improvements	
		Mitigation Measure TRA-6f: Airport Way/Woodward Avenue—Pay Fair-Share Contribution of Intersection Improvements	
		Mitigation Measure TRA-6g: Woodward Avenue/Moffat Boulevard—Pay Fair-Share Contribution of Intersection Improvements	
Impact TRA-6b: Degradation of Intersection Operations from Increased Traffic at Woodward Avenue/Moffat Boulevard, Moffat Boulevard/SR 99 SB Off-Ramp, Moffat Boulevard/Austin Road/SR 99 SB On-Ramps, Austin Road/SR 99 NB Ramps, and Main Street/Yosemite Avenue	Significant	Mitigation Measure TRA-5f: Moffat Boulevard between Woodward Avenue and Austin Road—Pay Fair-Share Contribution to Reconstruct the SR 99/Austin Road Interchange	Significant and Unavoidable
		Mitigation Measure TRA-6h: Main Street/Yosemite Avenue—Amend City General Plan to Exempt Intersection from LOS Standards	
		Mitigation Measure TRA-6i: Woodward Avenue/Van Ryn Avenue—Pay Fair-Share Contribution of Intersection Improvements	

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact TRA-7: Degradation of Freeway Mainline Operations from Increased Traffic at SR 120 EB from Yosemite Avenue to Airport Way, Airport Way to Union Road, Union Road to Main Street, and Main Street to SR 99; SR 120 WB from SR 99 to Main Street, Main Street to Union Road, Union Road to Airport Way, Airport Way to Yosemite Avenue;SR 99 NB from Jack Tone Road to Austin Road, Austin Road to SR 120 (Weaving Section), and SR 120 to Yosemite Avenue (Weaving Section); and SR 99 SB from Yosemite Avenue to SR 120 (Weaving Section), SR 120 to Austin Road, and Austin Road to Jack Tone Road	Significant	—	Significant and Unavoidable
Impact TRA-8: Degradation of Freeway Ramp Junction Operations from Increased Traffic at SR 120 EB (Main Street Off-Ramp and Main Street On-Ramp); SR 120 WB (Main Street Off-Ramp and Main Street On-Ramp); SR 99 NB (Austin Road Off-Ramp and Austin Road On-Ramp); and SR 99 SB (Austin Road/Moffat Boulevard Off-Ramp and Austin Road/Moffat Boulevard On-Ramp)	Significant	Mitigation Measure TRA-5a: Main Street between the SR 120 EB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Main Street/SR 120 Mitigation Measure TRA-5c: Union Road between SR 120 WB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Union Road/SR 120 Mitigation Measure TRA-5f: Moffat Boulevard between Woodward Avenue and Austin Road—Pay Fair-Share Contribution to Reconstruct the SR 99/Austin Road Interchange	Significant and Unavoidable
Impact USS-1: Temporary Construction-Related Impacts on Access Routes and Reduced Response Times for Police, Fire, and Emergency Services	Less than Significant	—	—

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
Impact USS-2: Operational Impacts on Police Services, Including Inadequate Service Ratios and Response Times	Less than Significant	—	—
Impact USS-3: Operational Impacts on Fire Services, Including Inadequate Service Ratios, Response Times, and Water Pressure and Supply for Fire Suppression	Less than Significant	—	—
Impact USS-4: Inadequate Service Ratios at Schools Serving the Project Site	Less than Significant	—	—
Impact USS-5: Provision of Parks and Recreational Facilities	Less than Significant	—	—
Impact USS-6: Expansion or Construction of New Wastewater Collection, Conveyance, or Treatment Facilities	Less than Significant	—	—
Impact USS-7: Inadequate Energy Sources and Infrastructure	Less than Significant	—	—
Impact USS-8: Temporary, Planned, or Accidental Construction-Related Disruptions to Utility Services	Significant	Mitigation Measure USS-8: Identify and Relocate Existing Utilities Where Necessary	Less than Significant
Growth Inducing and Cumulative Impacts			
Impact GI-1: Fosters Economic or Population Growth or Additional Housing	Less than Significant	—	—
Impact CE-1: Cumulative Loss of Agricultural Lands	Significant	Mitigation Measure AG-1: Pay Agricultural Mitigation Fee	Significant and Unavoidable
Impact CE-2: Cumulative Effect on Air Quality	Significant	Mitigation Measure AQ-1c: Implement Measures to Comply with SJVAPCD Rule 9510, Indirect Source Review	Less than Significant

Table ES-1. Continued

Impact	Significance Before Mitigation	Mitigation	Significance with Mitigation Incorporated
		Mitigation Measure AQ-1d: Enter into a Development Mitigation Contract	—
		Mitigation Measure AQ-1e: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts	—
Impact CE-3: Cumulative Increase in Greenhouse Gas Contaminant Emissions	Significant	Mitigation Measure CE-3: Implement City of Manteca General Plan Policies for Energy Conservation	Significant and Unavoidable

Chapter 1
Introduction

The California Environmental Quality Act (CEQA) of 1970, as amended, requires that an environmental impact report (EIR) be prepared, certified, and considered by decision makers before action is taken on a project. CEQA Guidelines Section 15161 requires an EIR to examine the expected individual and cumulative impacts of all phases of a proposed project, including planning, construction, and operation. An EIR also identifies mitigation measures to minimize potential significant impacts and evaluates reasonable alternatives to the proposed project, including a required no-project alternative. The project being evaluated in this EIR, the Evans Estates–Pillsbury Estates Project (proposed project), requires approval from the City of Manteca (City).

Requirements of an Environmental Impact Report

CEQA (Public Resources Code [PRC] 21000–21178.1) and the CEQA Guidelines provide the statutory requirements for evaluating environmental impacts of a project. CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority. Public agencies are required to avoid or mitigate impacts, when feasible. Public agencies also are required to balance a variety of public objectives, including economic, environmental, and social objectives.

An EIR is a public informational document used in the planning and decision-making process. Although an EIR does not control the ultimate decision on a project, the lead agency (in this case, the City) must consider the information in the EIR and respond to each significant impact identified in the EIR. In providing that information, an EIR must:

- identify the potentially significant impacts of a project on the environment and indicate the manner in which those significant impacts can be avoided or mitigated,
- identify any significant impacts that cannot be mitigated, and
- identify reasonable and feasible alternatives to the project that would eliminate any significant impacts or reduce them to a less-than-significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of all past, present, and reasonably anticipated future projects. An EIR represents an objective, good-faith disclosure of the foreseeable environmental impacts that might occur should the project be approved and developed. An EIR does not approve or deny the project.

CEQA requires the lead agency to prepare an EIR that reflects the independent judgment of the agency regarding the impacts of the project, the level of significance of the impacts both before and after mitigation, and any mitigation measures proposed to reduce the impacts. A draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of a draft EIR include sharing expertise, disclosing agency analyses, checking accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals.

Reviewers of a draft EIR should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant impacts of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant impacts.

Focus of the Environmental Impact Report

CEQA identifies various types of EIRs, the most common of which is the project EIR. A project EIR, such as this document, focuses primarily on the changes in the environment that would result from a development project. It examines all phases of the project, including planning, construction, and operation.

A notice of preparation (NOP) of a draft EIR and an initial study (IS) were prepared for the proposed project and published for a 30-day public review and comment period beginning November 6, 2007 (Appendix A). After considering the results of the analysis presented in the IS, the City determined that preparation of an EIR, covering the full range of environmental issues except those scoped out in the IS, was required.

The IS found that the proposed project would have no impact or a less-than-significant impact on the topics listed below. Therefore, these topics are not further addressed in this EIR:

- aesthetics
- special status-plants, riparian habitat, wetlands, or migratory fish or wildlife
- mineral resources
- population and housing
- solid waste

The IS further found that the proposed project would constitute a cumulatively considerable contribution to significant impacts related to the conversion of important farmland to urban uses.

The IS determined that an additional study was required in the following areas to evaluate the significance of the potential impacts and develop mitigation measures, if necessary and available.

- **Agricultural Resources:** impact of agricultural land conversion to urban uses
- **Air Quality:** Air Quality Attainment Plan conformity study, URBEMIS modeling, CALINE modeling, and evaluation of conformance with San Joaquin Valley Air Pollution Control District (SJVAPCD) thresholds for contribution to cumulative impacts related to emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_x)
- **Cultural Resources:** historical and archaeological resource studies
- **Geology, Soils, and Paleontology:** site-specific geotechnical study
- **Hazards and Hazardous Materials:** environmental site assessment study
- **Hydrology and Water Quality:** storm drainage impacts following detailed drainage plans
- **Land Use and Planning:** loss of land inventory for higher-density housing opportunities
- **Noise:** construction and traffic noise study following completion of traffic impact study
- **Public Services and Utilities:** wastewater and drainage studies and water supply assessment
- **Traffic and Transportation:** traffic impact study

Terminology

To assist readers in understanding this EIR, key terms are defined below.

- A *project* is the whole of an action that has the potential to result in a physical change in the environment, either directly or ultimately.
- The *environment* is the physical conditions that exist in the area and that would be affected by a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is the area in which significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and artificial conditions.

- *Impacts* analyzed under CEQA must be related to a physical change. Impacts comprise:
  - direct or primary effects that are caused by the project and occur at the same time and place; or
  - indirect or secondary effects that are caused by the project and are later in time or farther removed in distance but are still reasonably foreseeable, including growth-inducing impacts and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- A *significant impact* is a substantial or potentially substantial adverse change in any of the physical conditions in the area affected by the project. This EIR uses several terms to describe the level of significance of adverse impacts, as described below under "Outline of Resource Chapters." An economic or social change by itself is not considered a significant effect on the environment. An economic or social change related to a physical change may be considered in determining whether the physical change is significant.
- *Mitigation* consists of:
  - avoiding the impact altogether by not taking a certain action or parts of an action;
  - minimizing the impact by limiting the degree or magnitude of the action and its implementation;
  - rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
  - reducing or eliminating the impact over time through preservation and maintenance operations during the life of the action; or
  - compensating for the impact by replacing or providing substitute resources or environments.
- *Cumulative impacts* are two or more individual impacts that, when considered together, are considerable, or that compound or increase other environmental impacts. The individual impacts may be changes resulting from a single project or separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Organization of this Report

This EIR is organized in the following chapters.

- "Executive Summary" presents a brief summary of the proposed project; summarizes the impacts and mitigation measures; identifies areas of known controversy, including issues raised by agencies and the public; and identifies unresolved issues. This chapter also summarizes the proposed project's growth-inducing impacts, significant and unavoidable impacts, and significant irreversible impacts.
- Chapter 1, "Introduction," explains the purpose of this EIR, defines terms used in the analysis, presents the general outline of the resource chapters, and discusses the environmental review process.
- Chapter 2, "Project Description," describes the proposed project.
- Chapters 3 through 12 are devoted to environmental analysis according to resource topics, such as agriculture and land use, air quality, cultural resources, hydrology, and transportation. Each resource is embodied within its own chapter.
- Chapter 13, "Other CEQA Considerations," presents the analysis of the proposed project's cumulative and growth-inducing impacts. Significant and irreversible environmental changes also are indicated in this chapter.
- Chapter 14, "Alternatives Analysis," identifies the alternatives that are being considered to eliminate or reduce significant impacts.
- Chapter 15, "References Cited," lists documents and persons consulted in preparation of this EIR.
- Chapter 16, "List of Preparers," lists the EIR authors, technical specialists, members of the production team, and other key individuals who assisted in the preparation and review of this EIR.
- Technical appendices with supporting data and information are presented at the end of this EIR.

Outline of Resource Chapters

Each resource chapter generally conforms to the outline below.

- **Environmental Setting**
  - **Regulatory Setting:** describes the federal, state, and local policies, regulations, and standards that apply to the resource area.
  - **Existing Conditions:** describes the existing conditions on the project site and in the study area in relation to the applicable resource.

- **Impact Analysis**
  - **Approach and Methodology:** describes the technical methodology for impact assessment and identifies the thresholds or standards used to determine the significance of the impacts, and the models used to assess impacts, and any other technical tools.
  - **Impacts and Mitigation Measures:** describes the impacts of the proposed project and identifies one or more feasible and enforceable mitigation measure for each significant or potentially significant impact, if available.

    The significance conclusions at the end of each impact discussion correspond to one of the following categories.
    - **No Impact.** This level of significance is applied when there is clearly no impact. Where it was clear at the outset that there would be no impact on a particular resource area under any of the alternatives (e.g., biological resources), the resource area was evaluated at a lesser level of analysis.
    - **Less than Significant.** This level of significance is applied where the degree of the impact would not meet or exceed the identified thresholds.
    - **Less than Significant with Mitigation.** This level of significance is applied where impacts would reach or exceed the identified thresholds, but would be reduced to a less-than-significant level through the implementation of mitigation measures.
    - **Significant and Unavoidable:** This level of significance is applied to significant impacts for which mitigation to reduce the impact to a less-than-significant level is not available or feasible.

Agencies That May Use this Report

This EIR may be used by several responsible or trustee agencies that also have review authority over the proposed project. As stated in CEQA Guidelines Section 15231:

> A final EIR prepared by a Lead Agency or a Negative Declaration adopted by a Lead Agency shall be conclusively presumed to comply with CEQA for purposes of use by Responsible Agencies which were consulted pursuant to Sections 15072 or 15082 unless one of the following conditions occurs:
>
> a. The EIR or Negative Declaration is finally adjudged in a legal proceeding not to comply with the requirements of CEQA, or
>
> b. A subsequent EIR is made necessary by Section 15162 of these Guidelines.

Agencies anticipated to use this EIR, in addition to the City, include the San Joaquin Local Agency Formation Commission and the California Department of Transportation.

Environmental Review Process

CEQA does not require formal hearings at any stage of the environmental review process (CEQA Guidelines Section 15202[a]). However, it does encourage "wide public involvement, formal and informal...in order to receive and evaluate public reactions to environmental issues" (CEQA Guidelines Section 15201). The City distributed an NOP of a draft EIR for the proposed project on November 6, 2007 (Appendix A). The NOP was distributed for a 30-day comment period that ended December 5, 2007. Comments on the NOP were considered in preparation of this EIR. Appendix B contains written comments received on the NOP.

Chapter 2
Project Description

Introduction

This environmental impact report (EIR) examines the proposed Evans Estates–Pillsbury Estates Project (proposed project) and related entitlement approvals. The approximately 240-acre project site encompasses two proposed developments, individually known as Evans Estates (160 acres) and Pillsbury Estates (80 acres). The general vicinity of the project site is San Joaquin County south of the Manteca city limits (Figure 2-1).

Project Location

The project site is located in unincorporated San Joaquin County directly south of the Manteca city limits (Figure 2-2). Regional access to the project site is provided by State Route (SR) 120 and SR 99 (located to the north and east of the site, respectively), with SR 120 ramps located on South Main Street and SR 99 ramps located at Moffat Boulevard/Austin Road. The project site is generally bound by South Manteca Road to the west, Pillsbury Road to the east, and existing residential subdivisions to the north (including Mission Garden, Emerald Glen, Woodward Park, and Jasmine Hollow).

The Evans Estates site comprises the western portion of the project site and is located at 21010 South Manteca Road (Figure 2-3). The Pillsbury Estates site, located adjacent to the Evans Estates site, comprises the eastern portion of the project site, and is located at 21017 Pillsbury Road (Figure 2-3). The individual tentative subdivision maps are discussed in further detail below.

Existing and Proposed Uses

Existing Land Uses

The southern portion of the Evans Estates site and most of the Pillsbury Estates site are currently used for agriculture (orchards). The orchard on the northern portion of the Evans Estates site has been removed.

Existing structures on the project site include three single-family homes (two on the Evans Estate site and one on the Pillsbury Estate site), and three barns, a shed, and a corral on the Evans Estates site.

Adjacent land uses include developed residential land to the north and agricultural land (i.e., orchards, vineyards, and row crops) to the east, south, and west.

Proposed Land Uses

The proposed project includes the construction of two residential subdivisions: Evans Estates and Pillsbury Estates. One of the existing single-family homes on the Evans Estates site would be removed under the proposed project and one would be preserved. The existing single-family home on the Pillsbury Estates site would be preserved. At full build-out, the two proposed developments would result in 861 new single-family homes, in addition to the two existing single-family homes that would be preserved on the project site.

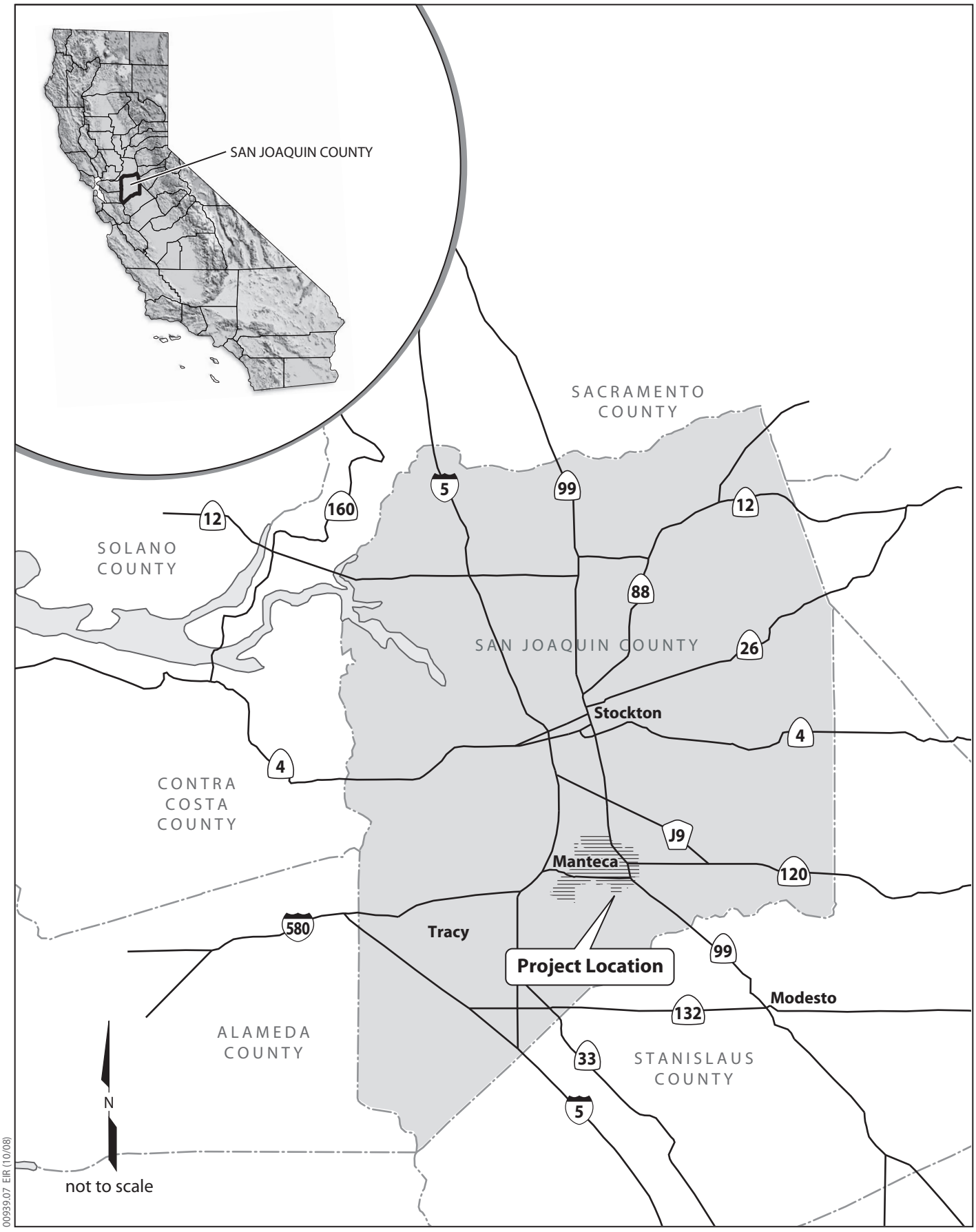
Project Objective

The objective of the proposed project is to provide additional residential opportunities for the expanding population of the City of Manteca. This project would help accommodate the growing community within the City's Primary Urban Service Boundary.

Project Characteristics

Evans Estates

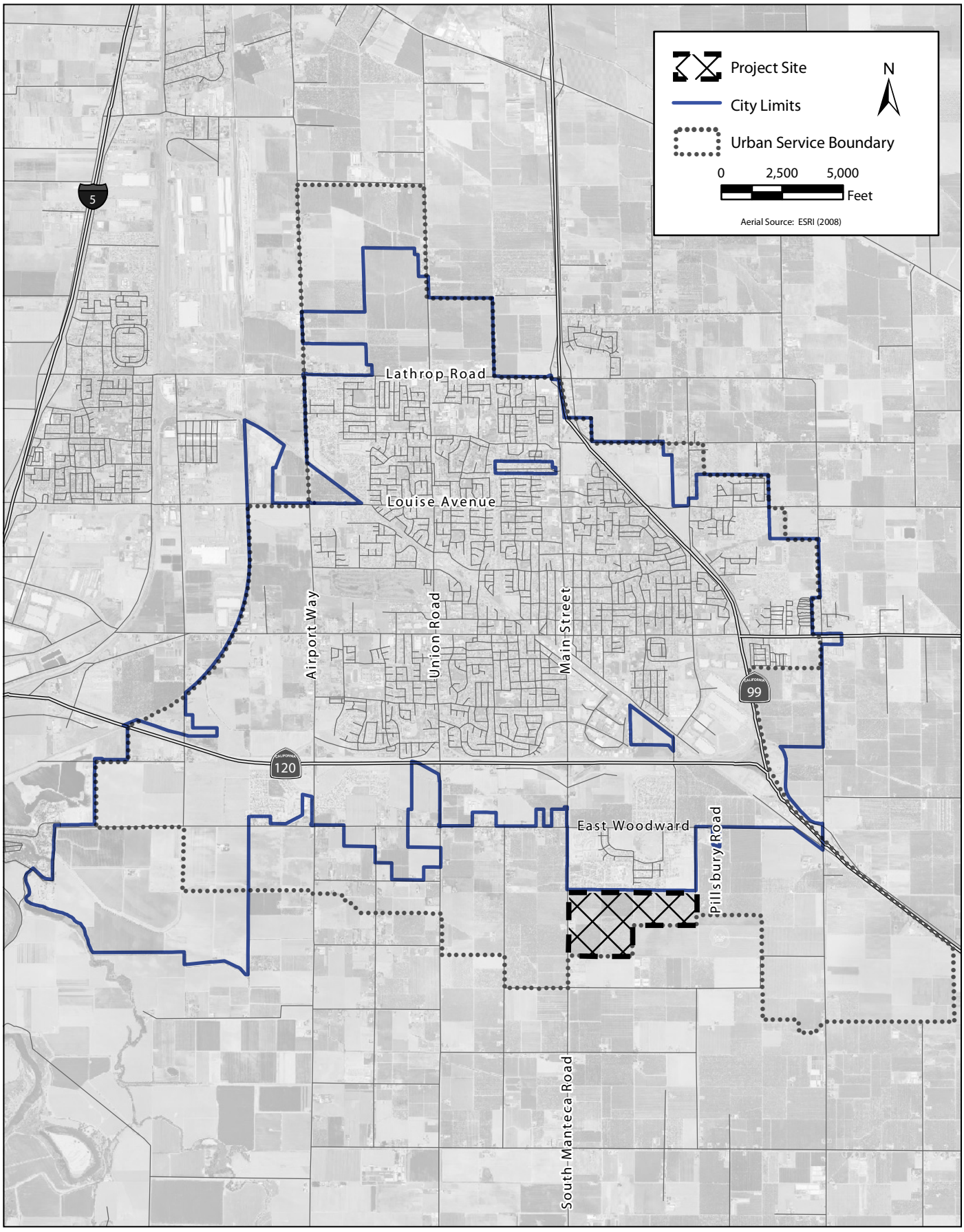
Project proponents of the Evans Estates development include Raymus Homes, Ed Machado, and Atherton Boyce Development. The Evans Estates development would subdivide approximately 160 acres into 587 single-family residential lots; construct 586 new single-family homes; preserve one existing single-family home; remove one existing single-family home, three barns, a shed, and a corral; and construct a 7.19-acre park/stormwater retention basin. The development



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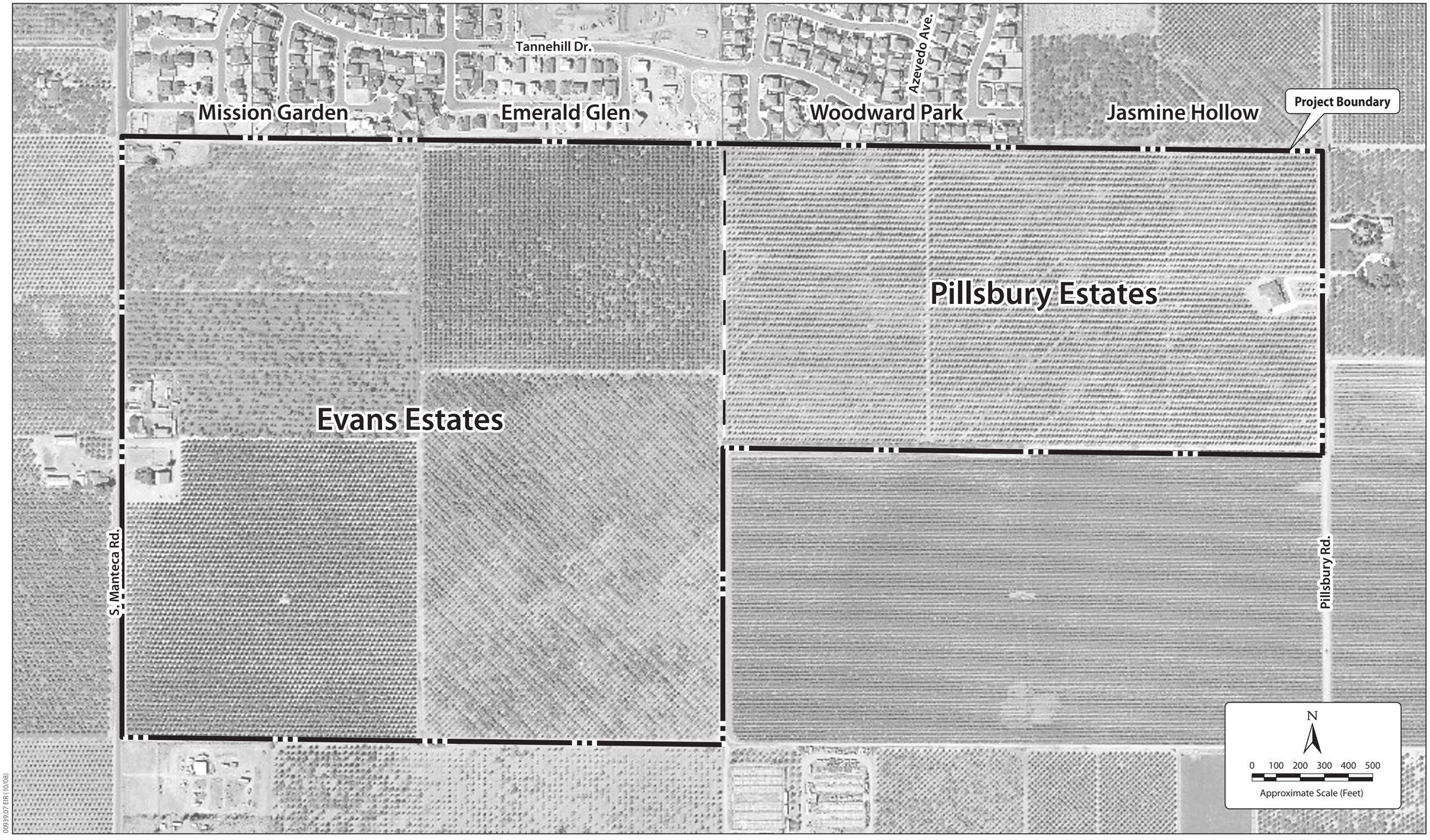
Figure 2-1
Project Vicinity



Graphics \ PROJECTS \ CITY_OF_MANTECA \ 00939_07 \ ss (02-05-09)

ICF Jones & Stokes
an ICF International Company

Figure 2-2
Project Location



00939.07 EIR (10/08)

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an ICF International Company

Figure 2-3
Project Site

would also involve annexation, prezoning, a development agreement, and a tentative map for residential development. Figures 2-4a, 2-4b, and 2-4c show the proposed subdivision of the Evans Estate site. Development of Evans Estates would be phased over a 5-year period, with construction of approximately 60, 172, 139, 112, and 104 units each year, respectively. Development would generally occur north to south.

Annexation

Development of Evans Estates would require annexation of the site to the City of Manteca (City) and detachment from the Lathrop-Manteca Fire Protection District.

Prezoning

Prior to annexation approvals by the San Joaquin Local Agency Formation Commission and the City, the Evans Estates site must be prezoned. The proposed project would prezone the approximately 160-acre site to R-1 residential.

Development Agreement

The proposed project would require the approval of three separate development agreements (one for each applicant) for the requested sewer allocations. Collectively, the three development agreements propose a total of 586 new connections for the Evans Estates site.

Pillsbury Estates

The project proponent of the Pillsbury Estates development is the Brocchini Family Partnership. The Pillsbury Estates development would subdivide 80 acres into 276 single-family residential lots, construct 275 new single-family homes, preserve one existing single-family home, and construct a 5-acre park/stormwater retention basin in the southern part of the site. The development would also involve annexation, prezoning, a general plan amendment, a development agreement, and a vesting tentative map for residential development. Figures 2-5a and 2-5b show the proposed subdivision of the Pillsbury Estates site. Pillsbury Estates would develop over a 4-year period, with construction phased to develop 70 units per year during the first 3 years and 65 units during the last year. Development would generally occur south to north.

Annexation

Development of Pillsbury Estates would require annexation of the site to the City and detachment from the Lathrop-Manteca Fire Protection District.

Prezoning

Prior to annexation approvals by the San Joaquin Local Agency Formation Commission and the City, the Pillsbury Estates site must be prezoned. The proposed project would prezone the 80-acre site to R-1 residential.

Development Agreement

The proposed project would require the approval of a development agreement for the requested sewer allocations. The project proposes 275 connections for the Pillsbury Estates site.

General Plan Amendment

The proposed project would require a general plan amendment to redesignate 16.4 acres of the eastern portion of the Pillsbury Estates site as low density residential (LDR) from its current designation of medium- and high-density residential (MDR and HDR, respectively).

Public Services and Utilities

Project proponents for both development proposals propose that the project site connect to existing city public services and utilities, which are described below.

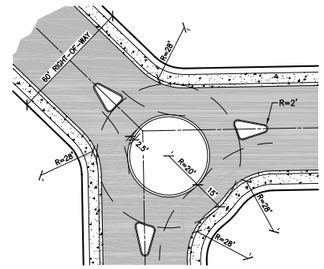
Gas and Electricity

The Pacific Gas & Electric Company (PG&E) currently provides natural gas and electric service to residents and businesses in Manteca.

Telephone

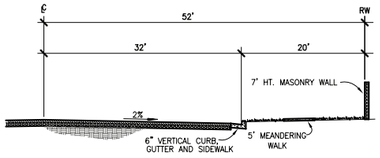
Verizon provides local telephone service for more than 45,000 customers in the Manteca area. The existing community is equipped with fiber-optic lines. Digital data services include DSL, T-1, ISDN (BRI and PRI), Frame Relay, Centranet, and telephone services.

TENTATIVE SUBDIVISION MAP
TRACT NO. 3470
EVANS ESTATES
A SINGLE FAMILY SUBDIVISION
NORTHWEST QUARTER OF SECTION 16, TOWNSHIP 2 SOUTH, RANGE 7 EAST, MOUNT DIABLO BASE AND MERIDIAN
SAN JOAQUIN COUNTY, CALIFORNIA



ROUNDABOUT DETAIL

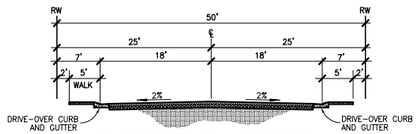
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MANTECA ROAD AND FUTURE MCKINLEY AVENUE

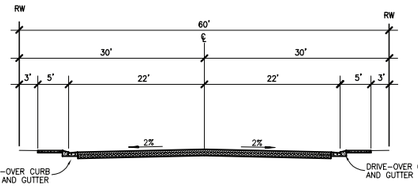
1/2 STREET SECTION

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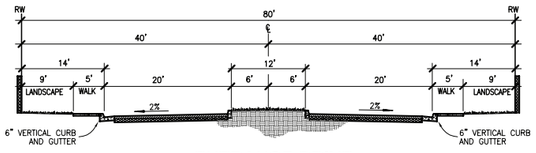
50' RESIDENTIAL STREET

SCALE= 1"=10'



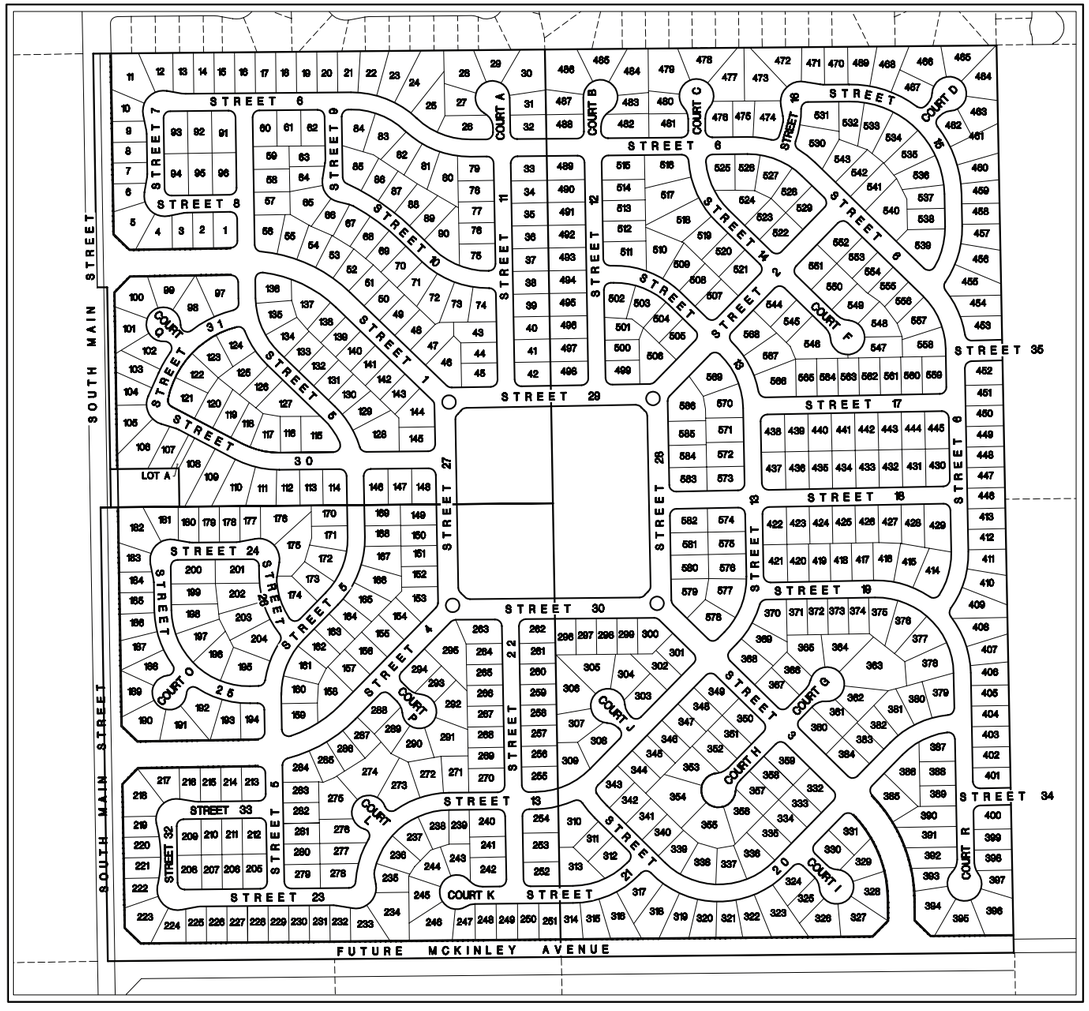
60' RESIDENTIAL STREET

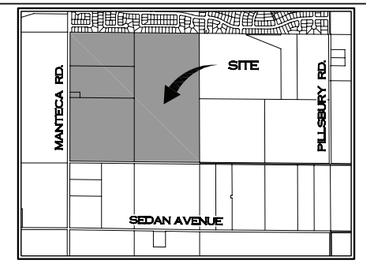
SCALE= 1"=10'



ENTRANCE DRIVE

SCALE= 1"=10'





VICINITY MAP

N.T.S.

DEVELOPERS:

RAYMUS HOMES
ED MACHADO
ATHERTON BOYCE DEVELOPEMENT

ENGINEER:

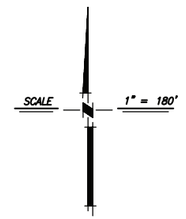
MCR ENGINEERING
1242 DUPONT CT.
MANTECA, CA 95336
PHONE: 239-6229

NOTES:

1. ALL IMPROVEMENTS TO CONFORM TO CITY OF MANTECA STANDARDS.
2. ALL UTILITIES TO BE UNDERGROUND.
3. SEWAGE DISPOSAL BY CONNECTION TO CITY SEWER SYSTEM.
4. STORM DRAINAGE PER CITY OF MANTECA MASTER PLAN BY COLLECTION SYSTEM AND CONNECTION TO A 10.06 ACRE RETENTION BASIN
5. DOMESTIC WATER BY CONNECTION TO CITY WATER SYSTEM.
6. PUBLIC UTILITY EASEMENT WILL BE PROVIDED ALONG ALL STREET FRONTAGES.
7. THIS SUBDIVISION CONTAINS 586 LOTS ON 159 ACRES ±.
8. THE SITE SHALL BE CLEARED OF ALL EXISTING STRUCTURES.
9. THIS PROJECT WILL BE DEVELOPED IN PHASES. PARCEL MAPS MAY BE FILED ON PHASE BOUNDARIES FOR PURPOSE OF SALE OR FARMING.
10. THIS PROPERTY IS LEVEL ELEVATION 24±.
11. BOUNDARY LINES ARE BASED ON ASSESSORS MAP AND ARE SUBJECT TO CHANGE

INDEX

1 COVER SHEET/CROSS SECTIONS
2 DIMENSION PLAN/DEVELOPEMENT PLAN
3 DIMENSION PLAN/DEVELOPEMENT PLAN



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COVER SHEET

EVANS ESTATES
MANTECA, CALIFORNIA

REVISIONS			
NO.	DESCRIPTIONS	DATE	APPROVED

MCR ENGINEERING, INC.
PLANNING • ENGINEERING • SURVEYING
1242 DUPONT COURT, MANTECA, CALIFORNIA 95336
PHONE 209.239.6229 FAX 209.239.8839

JOB NO. 03-142
DATE 12/08/08
SCALE AS SHOWN
DR. BY FK
CK. BY JR
FILE

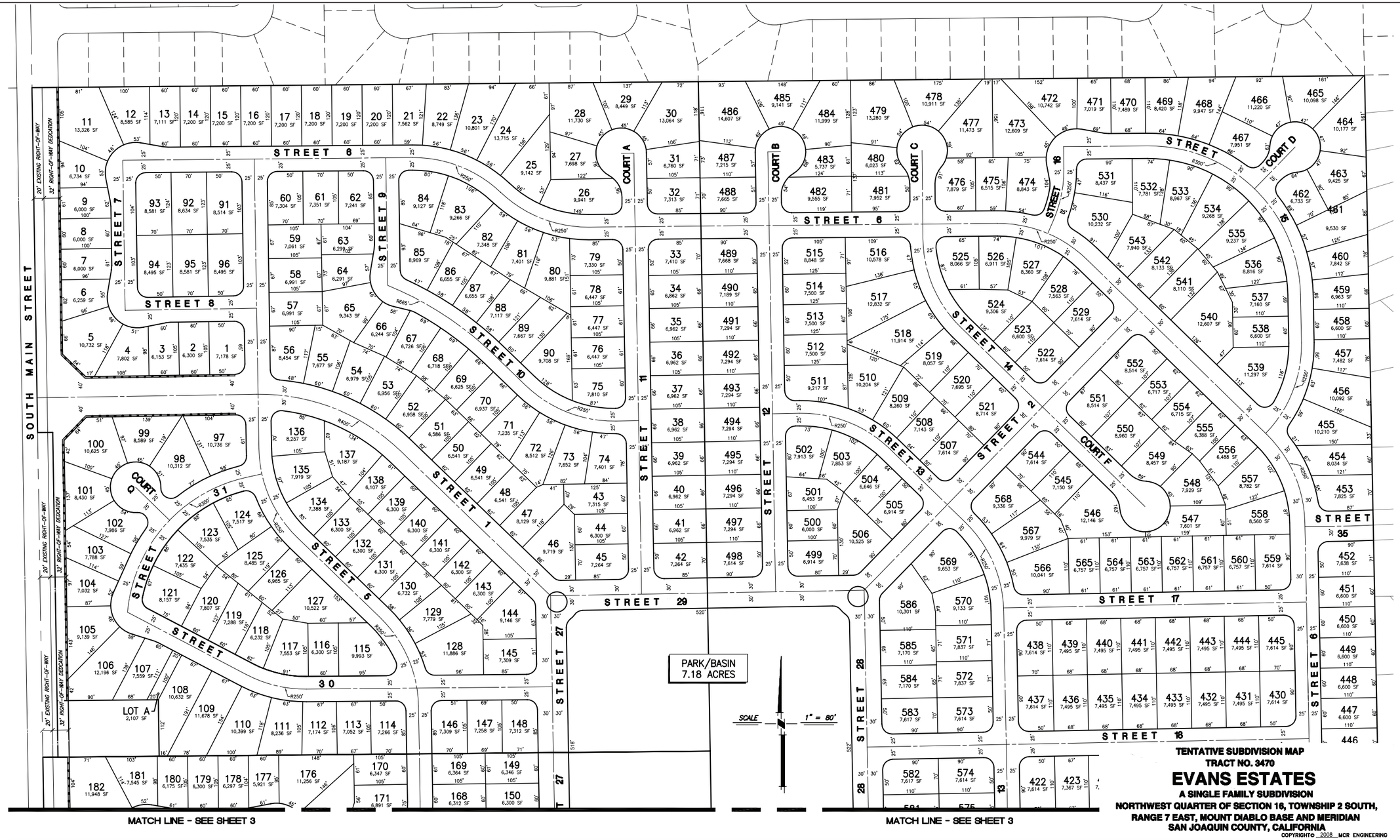
REGISTERED PROFESSIONAL ENGINEER J. DAN EAVESON No. C54068 EXP. 12-31-09 CIVIL STATE OF CALIFORNIA

SHEET NUMBER 1 OF 3

Source: MCR Engineering, Inc.

ICF Jones & Stokes
an ICF International Company

Figure 2-4a
Tentative Subdivision Map—Evans Estates



TENTATIVE SUBDIVISION MAP
TRACT NO. 3470

EVANS ESTATES

A SINGLE FAMILY SUBDIVISION
NORTHWEST QUARTER OF SECTION 16, TOWNSHIP 2 SOUTH, RANGE 7 EAST, MOUNT DIABLO BASE AND MERIDIAN
SAN JOAQUIN COUNTY, CALIFORNIA

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NORTH DIMENSION PLAN

EVANS ESTATES
MANTECA, CALIFORNIA

REVISIONS			
NO.	DESCRIPTIONS	DATE	APPROVED

MCR ENGINEERING, INC.
PLANNING • ENGINEERING • SURVEYING
1242 DUPONT COURT, MANTECA, CALIFORNIA 95336
PHONE 209.239.6229 FAX 209.239.8839

JOB NO. 03-142
DATE 12/08/08
SCALE AS SHOWN
DR. BY FK
CK. BY JR
FILE

REGISTERED PROFESSIONAL ENGINEER J. DAN EAVENSON No. C54088 EXP. 12-31-08 CIVIL STATE OF CALIFORNIA

SHEET NUMBER 2 OF 3

Source: MCR Engineering, Inc.

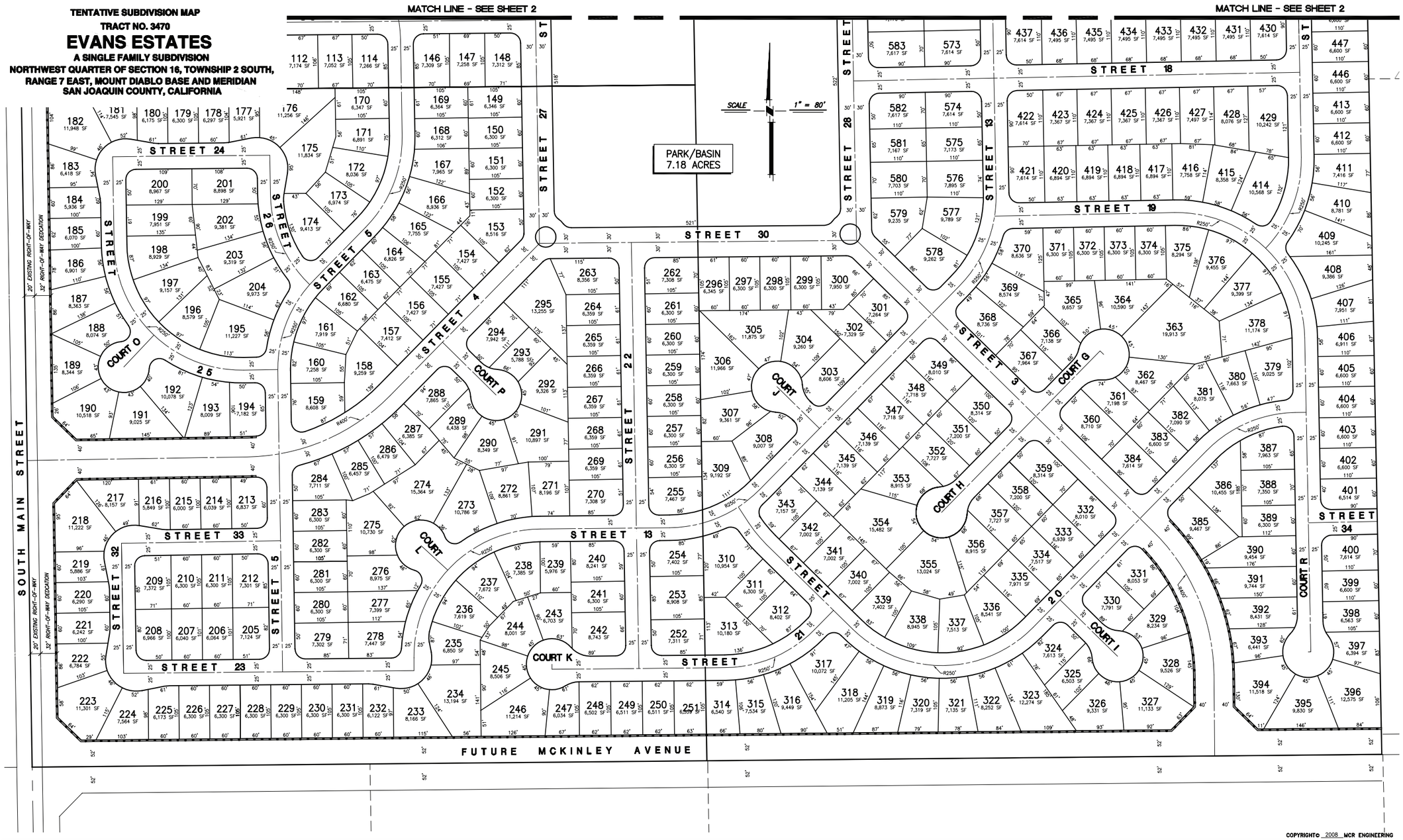
00939.07 EIR (12/08)

Figure 2-4b
Tentative Subdivision Map—Evans Estates (Northern Portion)

TENTATIVE SUBDIVISION MAP
TRACT NO. 3470

EVANS ESTATES

A SINGLE FAMILY SUBDIVISION
NORTHWEST QUARTER OF SECTION 16, TOWNSHIP 2 SOUTH, RANGE 7 EAST, MOUNT DIABLO BASE AND MERIDIAN SAN JOAQUIN COUNTY, CALIFORNIA



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SOUTH DIMENSION PLAN	**EVANS ESTATES** MANTECA, CALIFORNIA	REVISIONS (NO. / DESCRIPTIONS / DATE / APPROVED)	**MCR ENGINEERING, INC.** PLANNING • ENGINEERING • SURVEYING 1242 DUPONT COURT, MANTECA, CALIFORNIA 95336 PHONE 209.239.6229 FAX 209.239.8839

JOB NO. 03-142
DATE 12/08/08
SCALE AS SHOWN
DR. BY FK
CK. BY JR
FILE:

REGISTERED PROFESSIONAL ENGINEER J. DAN LAWERSON No. C54088 EXP. 12-31-09 CIVIL STATE OF CALIFORNIA

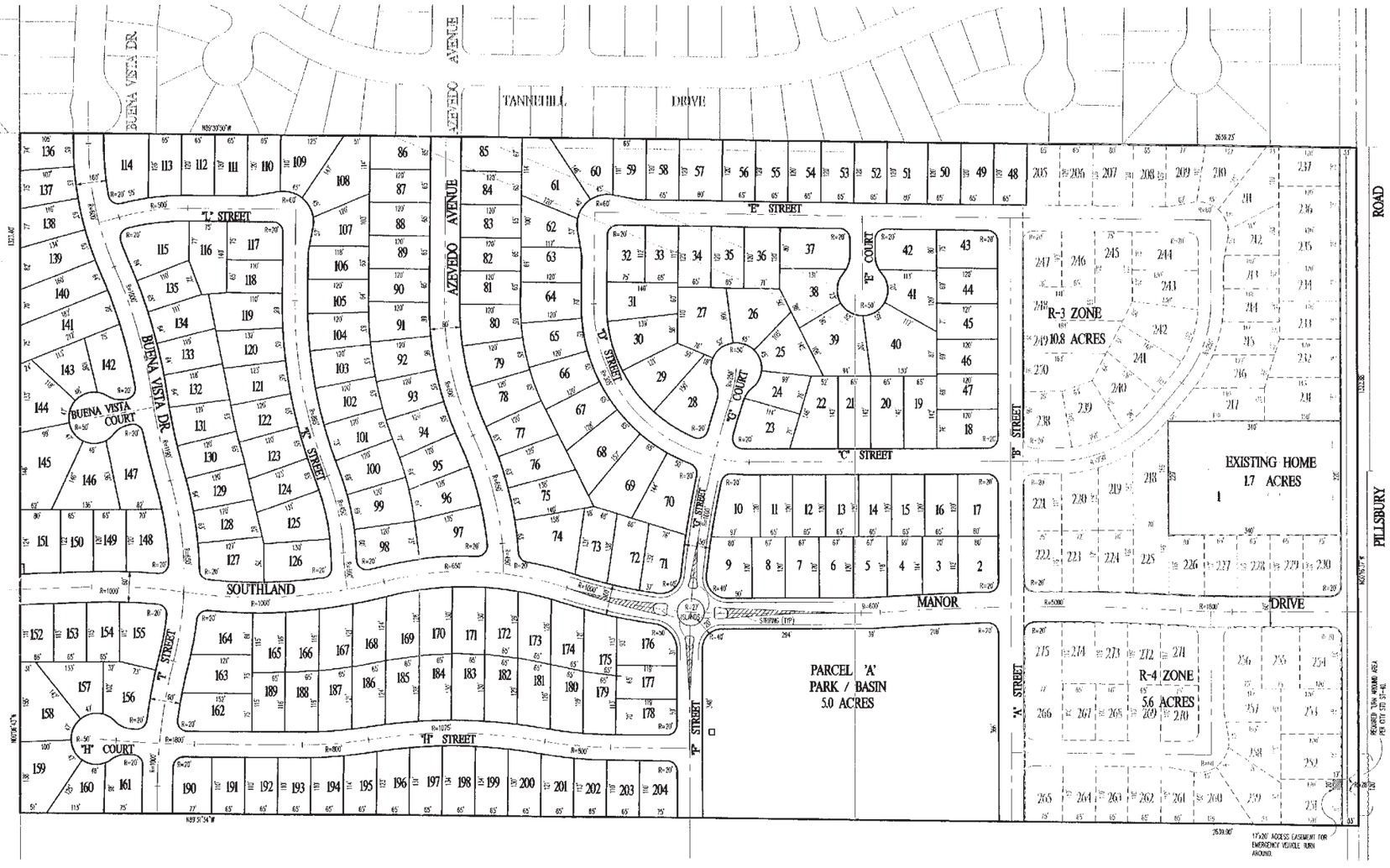
SHEET NUMBER 3 OF 3

Source: MCR Engineering, Inc.

00939.07 EIR (10/08)

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an ICF International Company

Figure 2-4c
Tentative Subdivision Map—Evans Estates (Southern Portion)



PILLSBURY ESTATES

VESTING TENTATIVE MAP TRACT NO. 3512

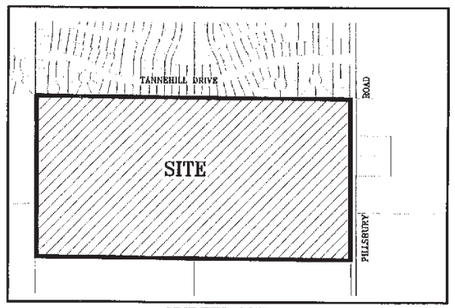
BEING A PORTION OF THE NORTHEAST 1/4 OF SECTION 16, TOWNSHIP 2 SOUTH, RANGE 7 EAST, M.D.B.& M. CITY OF MANTECA, CALIFORNIA

NORTH

0' 100' 200' 300'

SCALE: 1" = 100'

DATE: ~~FEBRUARY 8, 2007~~ 6/25/07 RLC



VICINITY MAP
NOT TO SCALE

OWNER:

MARVIN D. & BARBARA J. BROCHINNI
21017 PILLSBURY ROAD
MANTECA, CA 95337

ENGINEER:

RLC ASSOCIATES
250 CHERRY LANE, STE. 208
MANTECA, CA 95337
(209) 239-5030
RONALD L. CHEEK, RCE 22918

NOTES:

1. ALL IMPROVEMENTS TO CONFORM TO CITY OF MANTECA STANDARDS.
2. SEWAGE DISPOSAL BY CONNECTION TO CITY OF MANTECA FACILITIES.
3. STORM DRAINAGE TO BE CONVEYED TO PROPOSED BASIN.
4. DOMESTIC WATER BY CONNECTION TO CITY OF MANTECA FACILITIES.
5. PUBLIC UTILITY EASEMENTS WILL BE PROVIDED ALONG ALL STREET FRONTAGES.
6. THIS PROJECT CONTAINS:

   204 LOTS OF WHICH 203 ARE R-1 STD. BUILDING LOTS, 1 EXISTING HOUSE TO REMAIN ON A LOT 1 & PARCEL "A" FOR UTILITY & LANDSCAPING PURPOSES ON 80.1± ACRES.

   ADDITIONAL 71 LOTS, FOR A TOTAL OF 275 LOTS, IF SITE DEVELOPED UNDER R-1 ZONING.

7. PROPERTY NOT SUBJECT TO INUNDATION.
8. EXISTING TOPOGRAPHY IS FLAT.
9. ALL EXISTING STRUCTURES (EXCEPT LOT 1) ARE TO BE REMOVED.
10. DEVELOPMENT WILL BE PHASED. PARCEL MAPS MAY BE FILED FOR REASONS OF LAND SALE. PARCEL LINES WILL BE CONSISTENT WITH THIS TENTATIVE MAP.
11. ALL ROADSIDE LANDSCAPING AND ENTRY FEATURES TO BE MAINTAINED BY A LIGHTING AND LANDSCAPE MAINTENANCE DISTRICT.
12. ALL EXISTING SSJID FACILITIES TO BE REMOVED AND RECONSTRUCTED PER THE REQUIREMENTS OF SSJID WITHIN THE PROJECT BOUNDARY.

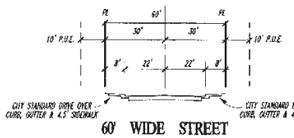
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Community Development Department

SHEET INDEX

1. VESTING TENTATIVE MAP DIMENSIONAL PLAN
2. VESTING TENTATIVE MAP MASTER UTILITY PLAN

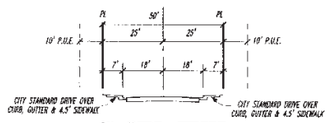
SITE SUMMARY

10.8 ACRES R-3
5.6 ACRES R-4
5.0 ACRES FOR PARK / BASIN
1.7 ACRES EXISTING HOME
57.0 ACRES R-1
  69' X 120' LOTS (TYPICAL) (203 LOTS)
  69' X 120' LOTS (TYPICAL) (71 ADDITIONAL LOTS IF R-3 & R-4 ZONING ELIMINATED)
80.1 TOTAL ACREAGE

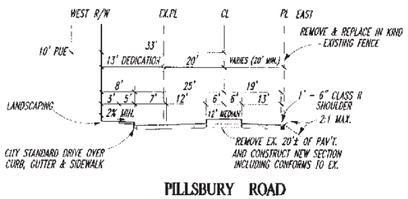


60' WIDE STREET
TYPICAL STREET SECTION
NOT TO SCALE

NOTES:
1. STREETS ALONG PARK / BASIN FRONTAGE TO HAVE 6" VERTICAL CURB & GUTTER WITH 4.5' SIDEWALK THAT SLOPES AT 2% TOWARDS BASIN FROM TOP OF CURB TO BASIN. TYPICAL FOR 50' AND 60' STREETS.



50' WIDE STREET
TYPICAL STREET SECTION
NOT TO SCALE



PILLSBURY ROAD
WITHIN PROJECT BOUNDARY
TYPICAL SECTION
NOT TO SCALE
NOTE: MEDIANS TO BE CONSTRUCTED WITH THIS PROJECT WITH BREAKS TO ALLOW FOR ACCESS TO LOTS ON WEST SIDE OF PILLSBURY.

DIMENSIONAL PLAN

RLC ASSOCIATES
250 Cherry Lane, Suite 208
Manteca, CA 95337
(209) 239-5030
FAX (209) 239-8216

SHEET NUMBER 1 OF 2

FILE: 3512-PLAN

00939.07 EIR (10/08)

Source: RLC Associates.

ICF Jones & Stokes
an ICF International Company

Figure 2-5a
Vesting Tentative Map—Pillsbury Estates (Dimensional Plan)

PILLSBURY ESTATES

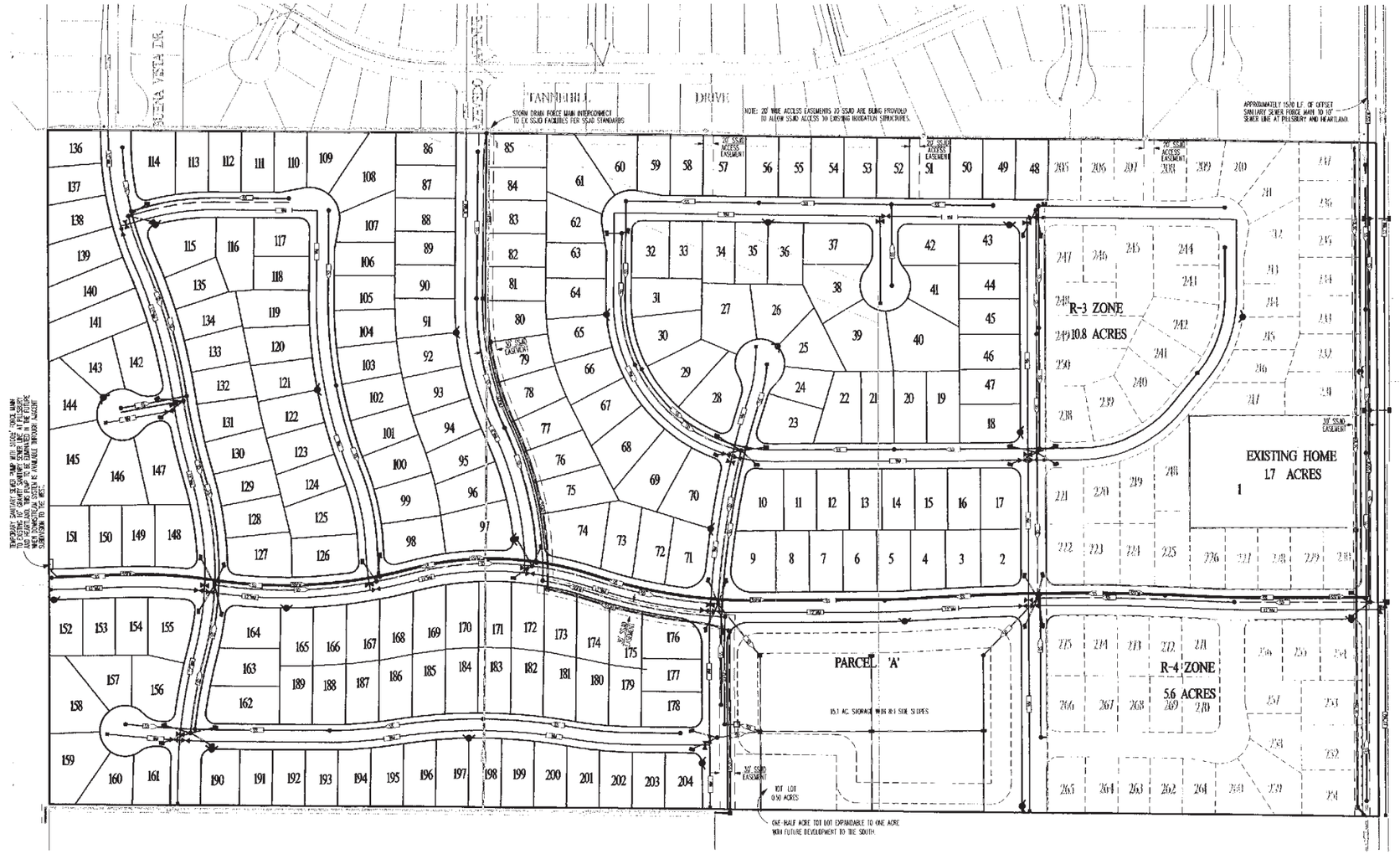
VESTING TENTATIVE MAP
TRACT NO. 3512

BEING A PORTION OF THE NORTHEAST 1/4 OF SECTION 16,
TOWNSHIP 2 SOUTH, RANGE 7 EAST, M.D.B.& M.
CITY OF MANTECA, CALIFORNIA

NORTH

0' 100' 200' 300'

SCALE: 1" = 100'
DATE: ~~FEBRUARY 8, 2007~~ 6/25/07



MASTER UTILITY PLAN

RLC ASSOCIATES
250 Cherry Lane, Suite 208
Manteca, CA 95337
(209) 239-5030
FAX (209) 239-8216

SHEET NUMBER 2 OF 2

Source: RLC Associates.

00939.07 EIR (10/08)

ICF Jones & Stokes
an ICF International Company

Figure 2-5b
Vesting Tentative Map—Pillsbury Estates (Master Utility Plan)

Water

The City provides water service for the existing community. Approximately 15,000 connection customers are served, with use of 11 million gallons per day (mgd). An elevated water storage tank that holds 300,000 gallons augments the water supplied from groundwater wells. The City, along with the cities of Escalon, Tracy, and Lathrop, are participating in the South County Surface Water Supply Project (SCSWSP). This project was developed to address future water needs through construction of a water treatment plant, transmission mains, surface storage reservoirs, and booster pump stations. The surface water and groundwater are utilized in a conjunctive-use program in which the surface water becomes the primary source of domestic water for Manteca. Manteca began receiving deliveries of water from SCSWSP in August 2005 (Jones & Stokes 2005).

Garbage

The City provides solid waste service to the Manteca area.

Sewer

The City's wastewater treatment plant serves Manteca, Lathrop, and Raymus Village in San Joaquin County. The plant currently treats 6.5 mgd of wastewater and has been rated with a capacity of approximately 9.87 mgd.

Storm Drainage

The City operates and maintains a storm drain system that serves the existing community. The system consists of approximately 170 miles of pipeline, 36 pump stations, and 35 detention basins. Runoff from rainfall flows through the system, into South San Joaquin Irrigation District drains and laterals, and eventually into the San Joaquin River. The proposed project would include onsite stormwater retention basins as shown on Figures 2-4 and 2-5.

Required Permits and Approvals

As described in detail above, the proposed project requires the City's approval of the following entitlements:

- prezoning,
- annexation to the City,
- detachment from the Lathrop-Manteca Fire Protection District,
- a development agreement;

- a vesting tentative map for residential development of the Pillsbury Estates site; and
- a tentative map for the residential development of the Evans Estates site.

In addition, the Pillsbury Estates subdivision would require a general plan amendment.

The San Joaquin Local Agency Formation Commission (LAFCO) may also use this EIR for the following approvals:

- annexation to the City, and
- detachment from the Lathrop-Manteca Fire Protection District.

Related Projects

The City's Community Development Department has identified 29 residential developments, including Evans Estates and Pillsbury Estates, within or immediately outside Manteca's city limits that are slated for construction or are tentatively proposed and pending environmental review. These projects are listed in Table 2-1. They vary in number of lots, size of the project site, and status of the approvals.

Table 2-1. Other Approved, Pending, and Proposed Development Projects

Development Name	Tentative Map Approval Date	Final Map Approval Date	Status	Total Lots	Acreage	Builder/Developer/Engineer/ Owner Contact Information
Affirmed Hsg Grp			Approved	1	1.6	
Antigua				119	53.13	Atherton Boyce Development P.O. Box 871 Manteca, CA 209/239-4014
Antigua Unit 1	06/05/2006	10/24/2006	Final Map	52	36.26	
Antigua Unit 2	06/05/2006	10/24/2006	Final Map	57	11.85	
Antigua Unit 3	06/05/2006	10/24/2006	Final Map	10	5.02	
Austin Road Business Park			Pending	3404	1,049	
Bright World Estates			Pending	21	5	Jehawn Ramish 7276 E. Woodward Avenue Manteca, CA 209/823-0016
Crivello Estates			Pending	62	18.76	MCR Engineering 322 Sun West Place Manteca, CA 209/239-6229
Dutra Estates				423	77.34	Florsheim Land Co. 1701 W. March Lane Stockton, CA 209/473-1106
Dutra Estates Unit 1	02/21/2006	04/19/2006	Final Map	86	20.96	
Dutra Estates Unit 2	02/21/2006	04/21/2006	Final Map	98	20.54	
Dutra Estates Unit 3	08/21/2006	09/01/2006	Final Map	68	11.05	
Dutra Estates Unit 4		07/26/2007	Final Map	101	24.2	
Erdman Project			Approved	8	2.4	
Evans Estates			Pending	586	159	MCR Engineering 322 Sun West Place Manteca, CA 209/239-6229
Ken Hill Estates	04/18/2005	11/14/2006	Final Map	12	4.73	Jerry Parker 2355 Oakland Road San Jose, CA 408/953-9918

Development Name	Tentative Map Approval Date	Final Map Approval Date	Status	Total Lots	Acreage	Builder/Developer/Engineer/ Owner Contact Information
Lincoln Estates	07/03/2006	12/11/2006	Final Map	19	3.65	Ed Machado 11708 E. Moncure Road Ripon, CA 209/599-2565
Lundbom Estates	07/25/2006		Tentative Map	21	5	RLC Associates 250 Cherry Lane, #208 Manteca, CA 209/239-5030
Machado Estates			Pending	564	160	Airport Woodward Joint Venture 544 E. Yosemite Manteca, CA 209/823-3148
Milner Estates (Silva)			Pending	215	59.9	
Oleander Estates	03/19/07		Tentative Map	544	112	Raymus Homes 250 Cherry Lane, #116 Manteca, CA 209/824-3080
Paseo West				191	50.8	Anderson Homes P.O. Box 1237 Lodi, CA 209/367-7600
Paseo West Unit 1	12/06/2004	11/29/2005	Final Map	92	26.37	
Paseo West Unit 2	12/06/2004	12/06/2004	Final Map	99	24.43	
Pillsbury Estates			Pending	275	80	Brocchini Family Ptp. 6926 E. Woodward Avenue Manteca, CA 209/239-1303
Rodoni Estates	06/06/2005	05/10/2006	Final Map	99	28.2	D.R. Horton 1210 Central Boulevard Brentwood, CA 925/634-6023
Shadowbrook	12/19/2005		Tentative Map	497	122	Shadowbrook Joint Venture 544 E. Yosemite Avenue Manteca, CA 209/823-3148
Sierra Creek #3	05/18/1998	03/05/2003	Final Map	22	33.53	MCR Engineering 310 Sun West Place Manteca, CA 209/239-6229
Sundance	03/19/2007		Tentative Map	451	110	FCB Homes 3247 W. March Lane Stockton, CA 209/957-8112

Development Name	Tentative Map Approval Date	Final Map Approval Date	Status	Total Lots	Acreage	Builder/Developer/Engineer/ Owner Contact Information
Terra Bella	08/05/2004	06/17/2005	Final Map	158	42.3	Bright Development 1620 N. Carpenter Road Modesto, CA 209/426-8242
Tesoro				492	80.71	Atherton Boyce Development P.O. Box 871 Manteca, CA 209/239-4014
Tesoro Unit 1	10/18/2004	07/11/2006	Final Map	272	47.06	
Tesoro Unit 2	10/18/2004	07/17/2007	Final Map	220	33.65	
Tesoro Apts			Approved	300	15.37	
Union Ranch				1922	356	RLC Associates 250 Cherry Lane, #208 Manteca, CA 209/239-5030
Union Ranch Unit 1	11/06/2006	08/22/2006	Final Map	249	41.2	
Union Ranch Unit 2	08/07/2006	08/25/2006	Final Map	65	25.13	
Union Ranch Unit 3	08/01/2006	06/22/2007	Final Map	265	83.46	
Union Ranch Unit 4	04/02/2001		Tentative	0	0	
Union Ranch Unit 5	07/15/2002		Tentative	0	0	
Union Ranch East				294	162.71	
Union Ranch East Unit 1		12/06/2006	Final Map	198	137.5	
Union Ranch East Unit 2		04/24/2008	Final Map	96	25.21	
Villa Ticino West	11/01/2004		Tentative Map	711	237	Andrew Rossi 611 N. Main Street Manteca, CA 209/824-4000
Westport	05/03/2004	03/17/2006	Final Map	24	5.27	Aldo Brocchini 6926 E. Woodward Avenue Manteca, CA 209/823-4624

Source: City of Manteca 2008a.

Chapter 3
Agriculture, Land Use, and Planning

Introduction

This chapter describes the impacts on agriculture, land use, and planning that would result from the Evans Estates–Pillsbury Estates Project (proposed project). The following key sources of data and information were used in the preparation of this chapter:

- *San Joaquin County General Plan 2010* (San Joaquin County 2005)
- *Manteca General Plan 2023 Draft Environmental Impact Report* (Wade Associates 2003)
- *City of Manteca General Plan 2023* (City of Manteca 2003),
- California Farmland Mapping and Monitoring Program, San Joaquin County Important Farmland 2006(California Department of Conservation 2008a) and
- 2007 Agricultural Report—San Joaquin County (San Joaquin County Agriculture Commissioner's Office 2007).

Environmental Setting

This section discusses federal, state, and local regulations related to land use and agricultural resources that would apply to the proposed project. It then describes existing conditions related to agricultural resources on and in the vicinity of the project site.

Regulatory Setting

Federal

There are no federal regulations associated with land use and agricultural resources that would apply to the proposed project. However, the Natural Resources Conservation Service (NRCS) is a primary source of information for the suitability of soils for agricultural use.

State

Farmland Mapping and Monitoring Program

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) does not regulate property use, but it provides consistent and impartial data to decision makers with regulatory authority for use in assessing the present status, reviewing trends, and planning for the future of California's agricultural land resources. The FMMP produces updated Important Farmland maps, which are hybrids of resource quality (soils) and land use information. Although these maps are intended to be updated every 2 years, the FMMP has not been updating at that frequency. The maps identify Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance, urbanized land, and other lands. Data also are released in statistical formats, principally the biennial *California Farmland Conversion Report*. This information tracks the rate of farmland loss throughout California.

The following definitions of farmland categories are derived from the FMMP and are used in FMMP mapping, trend reports, and other analyses.

- **Prime Farmland**—farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to mapping.
- **Farmland of Statewide Importance**—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 4 years prior to mapping.
- **Unique Farmland**—farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but it may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to mapping.
- **Farmland of Local Importance**—land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. For the County, this definition is all farmable land within San Joaquin County not meeting the definitions of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. This includes land that is or has been used for irrigated pasture, dryland farming, confined livestock or dairy facilities, aquaculture, poultry facilities, and dry grazing. It also includes soils previously designated by soil characteristics as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland that since have become idle.
- **Grazing Land**—land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative

Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- **Urban and Built-Up Land**—land occupied by structures, with a building density of at least one unit per 1.5 acres, or approximately six structures per 10-acre parcel. This land is used for residential uses, industrial uses, commercial uses, construction purposes, institutional uses, public administration uses, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land**—land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres.
- **Water**—perennial water bodies with an extent of at least 40 acres.

The 2004–2006 edition of the *California Farmland Conversion Report* states that approximately 5,467 acres of Prime Farmland within San Joaquin County were converted to nonagricultural uses between 2004 and 2006 (California Department of Conservation 2008b). This continues a steady trend of conversion throughout the region.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965, commonly known as the Williamson Act (California Government Code [CGC] 51200–51295), provides incentives, through reduced property taxes, to encourage long-term agricultural and open space land uses. Cities and counties may designate agricultural preserves and may offer contracts to owners of land within the preserve that is dedicated to agricultural use. The contracts ensure a preferential property-tax rate, and the landowner agrees not to convert the land to nonagricultural uses for a minimum 10-year period.

None of the project site is identified as land currently under a Williamson Act contract (California Department of Conservation 2006).

California Farmland Conservancy Program

The California Farmland Conservancy Program (CFCP) provides grant funding for projects that use and support agricultural conservation easements for the protection of agricultural lands. It provides for the long-term, private stewardship of agricultural lands where the property owner has voluntarily agreed to place his or her land into an agricultural conservation easement. As of October 2006, the CFCP has provided 28 conservation easement grants from state Proposition 12 monies, preserving nearly 11,000 acres of strategic farm and ranch land within the Central Valley. The CFCP is administered by DOC.

Local

San Joaquin County Local Agency Formation Commission

The San Joaquin County (County) Local Agency Formation Commission (LAFCo) is responsible for reviewing and approving proposed annexations. A LAFCo is established in each county by the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code 56000 et seq.), which sets out the procedures and standards to be applied when considering the incorporation, annexation, and deannexation of cities and special districts.

The role of the LAFCo is to ensure that local jurisdictional boundary changes and provisions of services are efficient and do not promote urban sprawl. Accordingly, the LAFCo establishes "spheres of influence" for each city and special district in the county. Each sphere identifies those areas that are likely to be annexed to that agency in the future.

The County LAFCo has adopted guideline standards to encourage planned development (San Joaquin County Local Agency Formation Commission 2008). The following LAFCo standards are pertinent to the proposed project.

- Proposals for annexation to cities will include all contiguous public roads that can be included without fragmenting governmental responsibility by alternating city and county road jurisdiction over short sections of the same roadway.
- Annexation to an adjacent city will be favored over a proposal for providing urban services by special districts.
- Annexations to agencies providing urban services will be progressive steps toward filling in the territory designated by the affected agency's adopted sphere of influence (SOI). Proposed growth will occur from inner areas toward outer areas.
- Economical efficiency of a larger annexation will be favored over a proposal for a "single parcel" or "piecemeal" annexation.
- A proposal establishing urban encroachment of areas designated by the County General Plan for open space and agricultural use will be opposed unless it complies with a previously adopted SOI of an incorporated city.

City of Manteca General Plan 2023

The *City of Manteca General Plan 2023* (City General Plan) identifies the community's land use, transportation, environmental, economic, and social goals and policies as they relate to land use, conservation, and development.

The Land Use Element provides the following policy and implementation measures intended to protect important farmland in Manteca.

Implementation Measures

LU-I-1. The City shall maintain a growth management system that provides a mechanism for the annual allocation of the amount of residential, commercial, and industrial development that may occur. The growth management system shall have the following objectives:

- Conserve viable agricultural and open space lands.

Policies

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.

LU-P-41. The City shall encourage the continuation of agricultural uses on lands within the Primary and Secondary Urban Services Boundary lines pending their development as urban uses consistent with the General Plan.

LU-P-42. The City will encourage the continuation of small, specialty agricultural operations and demonstration or educational agricultural operations that are compatible with the adjacent urban uses.

The Community Design Element provides the following policies intended to retain agricultural resources in the Manteca.

Policies

CD-P-48. Allow pockets of agricultural activity to remain within the urban areas of the city where such uses are compatible with the surrounding urban use.

CD-P-49. Allow use of small under-utilized parcels or undeveloped portions of parcels for temporary, seasonal agricultural activity, such as truck farms, strawberries, and small orchards.

The Resource Conservation Element provides the following goals, policies, and implementation measure intended to conserve agricultural resources in Manteca.

Goal RC-9. To promote the continuation of agricultural uses in the Manteca area and to discourage the premature conversion of agricultural land to nonagricultural uses, while providing for the urban development needs of Manteca.

Policies

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

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

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.

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

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.

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

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

Implementation

RC-I-30. Apply the following conditions of approval where urban development occurs next to farmland.

- Require notifications in urban property deeds that agricultural operations are in the vicinity, in keeping with the City's right-to-farm ordinance.
- Require adequate and secure fencing at the interface of urban and agricultural use.
- Require phasing of new residential subdivisions; so as to include an interim buffer between residential and agricultural use.

City of Manteca Right-to-Farm Ordinance

Chapter 8.24 of the Manteca Municipal Code is a right-to-farm ordinance intended to protect agricultural productivity in Manteca. The ordinance includes the following statement.

> It is the policy of this City to preserve, protect and encourage the use of viable agricultural lands 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.

Existing Conditions

This section discusses the existing conditions related to land use and agricultural resources on and in the vicinity of the project site.

Region and County

San Joaquin County is centrally located in California's vast heartland, the San Joaquin Valley, an area of relatively level, agriculturally productive land. The foothills of the Diablo Range define the southwest corner of the county, and the foothills of the Sierra Nevada lie along the county's eastern boundary (San Joaquin County 2005).

Level, well-drained soils, however, are also prime areas for urban development. Although urbanized areas compose a relatively small portion of the county, the tremendous growth pressures in the San Francisco Bay Area, coupled with the absence of affordable housing there, have made San Joaquin County a highly attractive location. This fact often results in land use conflicts and the division of large agricultural parcels into smaller lots (San Joaquin County 2005).

San Joaquin County encompasses 912,329 acres, or 1,426 square miles (San Joaquin County 2005). In 2006, approximately 85% (or 765,003 acres) of the land was devoted to agricultural use (California Department of Conservation 2008b). About 4,000 farms are located in the county, with an average size of 209 acres. In California, San Joaquin County is the top producer of pumpkins, cherries, asparagus, grain corn, apples, and English walnuts and is one of the top five producers of tomatoes, cucumbers, potatoes, dry beans, sweet corn, safflower, wine grapes, almonds, watermelons, processing tomatoes, vegetable and vine crop seeds, onions, wheat, and apricots (San Joaquin County 2005).

DOC data for 2006 indicate that Prime Farmland encompasses approximately 53% (or 407,609 acres) of the total county agricultural land. The remaining agricultural land comprises Farmland of Statewide Importance (12%), Unique Farmland (8%), Farmlands of Local Importance (7%), and Grazing Land (19%) (California Department of Conservation 2008b).

City of Manteca

Manteca has historical roots as an important agricultural center. For much of the twentieth century, the Manteca area was predominantly an agricultural area because of the quality of the soil, the mild climate, and the available access to

clean water. While agriculture still plays an important role in Manteca's economy, its economic base has become more diversified with the development of industries and the influx of Bay Area workers seeking affordable housing (Wade Associates 2003).

Manteca has tended to grow in a compact form, with few large vacant parcels. Development densities are typical of small, suburban communities. The average residential neighborhood has approximately 4 to 5 dwelling units per acre. The density of residential neighborhoods in the older portions of Manteca is comparable to the newer residential neighborhoods. Urban development is not significantly constrained by physical features or terrain in the vicinity of the project site. All natural features, including natural waterways and any native vegetation, have been removed for agriculture (City of Manteca 2003).

As discussed in Chapter 2, "Project Description," the City's Community Development Department has identified 38 residential developments, including the proposed project, within or immediately outside Manteca's city limits that are slated for construction or are tentatively proposed and pending environmental review. These projects are listed on Table 2-1 in Chapter 2, "Project Description."

Project Site and Adjacent Lands

As described in Chapter 2, "Project Description," at full build-out, the two proposed developments would result in 861 new single-family homes, in addition to the two existing homes that would remain on the project site—one on the Pillsbury Estates site and one on the Evans Estates site. Specifically, the Pillsbury Estates development would subdivide 80 acres into 276 single-family residential lots, construct 275 new single-family home, preserve one existing single-family home, and construct a 5-acre park/stormwater retention basin at southern part of the site. The Evans Estates development would subdivide approximately 160 acres into 587 single-family residential units; construct 586 new single-family homes; preserve one single-family home; remove one existing single-family home, three barns, a shed, and a corral; and construct a 7.19-acre park/stormwater retention basin.

The project site is located in San Joaquin County directly south of the Manteca city limits but within the City's primary urban service boundary (Figure 2-2, Chapter 2, "Project Description"). The project site is generally bound by South Manteca Road to the west, Pillsbury Road to the east, and existing residential subdivisions to the north (including Mission Garden, Emerald Glen, Woodward Park, and Jasmine Hollow).

The southwest and northeast portions of the Evans Estates site and most of the Pillsbury Estates site are currently used for agriculture (almond orchards). In August 2005, the orchard on the northwest portion of the Evans Estates site appears to have been removed. In January 2008, the southeast portion of the Evans Estates site was bare/disked. Currently, approximately 150 acres of the project site are being used for almond orchards. Existing structures at the project

site includes four residences and a barn on the Evans Estates site and one residence on the Pillsbury Estates site.

The project site is currently zoned by the County as General Agriculture, with a minimum parcel size of 40 acres (AG-40), and by the City as Low-, Medium- and High-Density Residential (LDR, MDR, HDR). Two pockets of parcels on the Evans Estates site and two on the Pillsbury Estates site are zoned as Park (P). Figure 3-1 shows the designated land uses on the project site. The existing County agricultural zoning would be replaced with City urban zoning consistent with the City General Plan following annexation.

The entire project site has been identified by DOC as Farmland of Statewide Importance (California Department of Conservation 2008a).

Adjacent land to the north of the project site includes the existing subdivisions of Mission Garden, Emerald Glen, Woodward Park, and Jasmine Hollow; this land is under City jurisdiction and is designated LDR. Adjacent lands to the east, south, and west include rural residential development and supporting structures and agricultural lands (e.g., orchards, vineyards, and row crops); these lands are currently designated by the County as General Agriculture (AG-40). Figure 3-1 shows the existing land use of the project site and adjacent lands.

Impact Analysis

This section describes the California Environmental Quality Act (CEQA) impact analysis relating to land use and agricultural resources for the proposed project, including the approach and methodology used to assess impacts; thresholds used to determine impact significance; individual impacts relative to the thresholds; mitigation measures to minimize, avoid, rectify, reduce, eliminate, or compensate for significant impacts; and the resulting significance of impacts with mitigation incorporated.

Approach and Methodology

This section describes the methods used to determine the proposed project's impacts and lists the thresholds used to conclude whether an impact would be significant.

This analysis assumes that the proposed project would adhere to the Manteca Municipal Code and would be prezoned R-1. For the purposes of this analysis, the proposed project would have a significant impact on land use and public policy if it would:

- physically divide an established community,

- conflict with applicable land-use plans or policies adopted by agencies with jurisdiction over the project site for the purpose of avoiding or mitigating an environmental impact, or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

For the purposes of this analysis, the proposed project would have a significant impact on agricultural resources if it would:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the FMMP, to nonagricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract; or
- involve other changes in the existing environment, which, because of their location or nature, could result in the conversion of farmland to a nonagricultural use.

Although almond orchards on the project site represent $51,800 of annual revenue[1] (San Joaquin County Agriculture Commissioner's Office 2007), loss of revenue would not result in a physical change in the environment. Therefore, it is not considered an impact under CEQA and is not further addressed in this report.

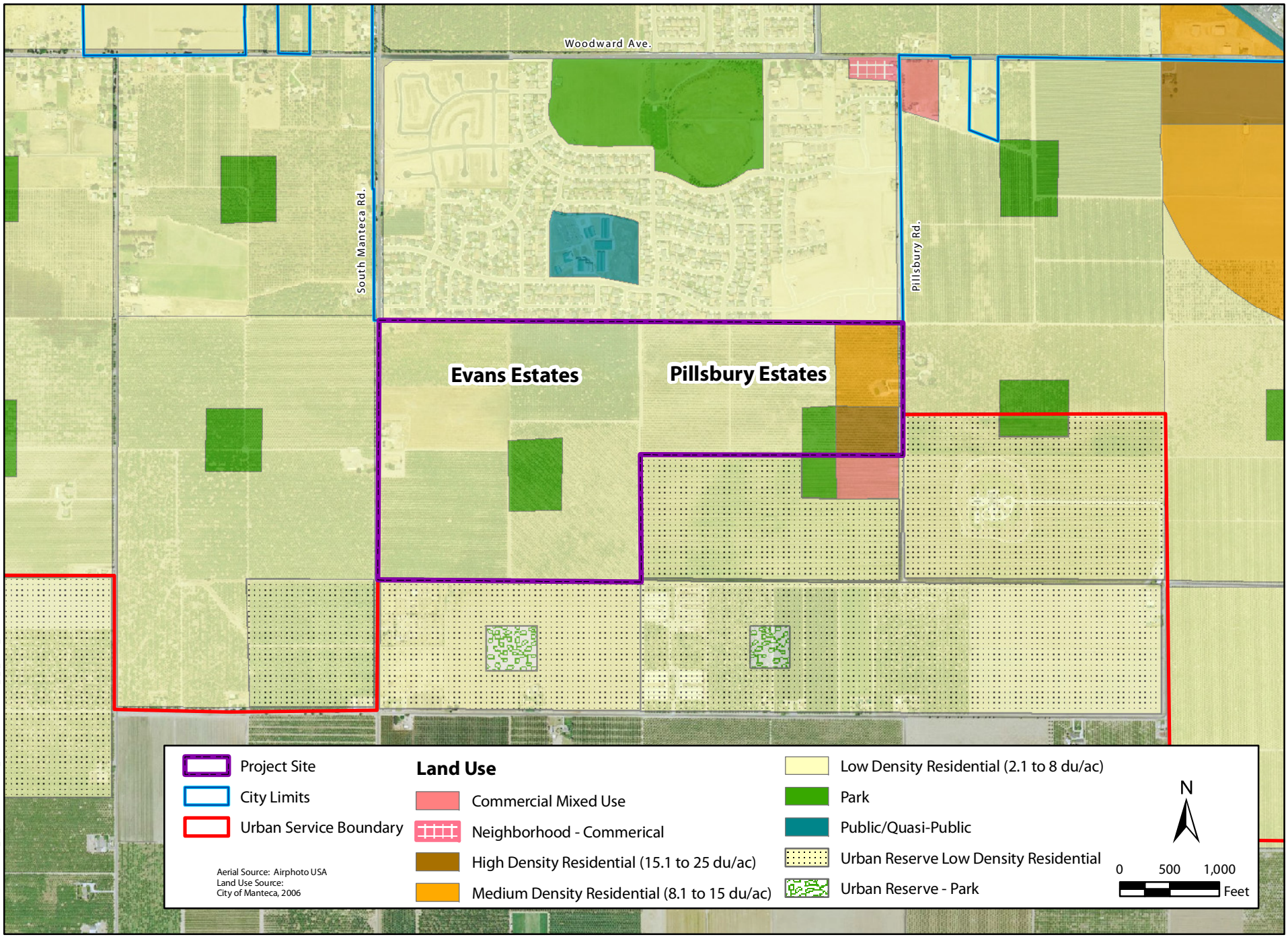
Impacts and Mitigation Measures

This section describes the impacts of the proposed project and the significance of the impacts. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Impact LU-1: Physical Division of an Established Community (No Impact)

Existing land uses in the in the vicinity of the project site consist primarily of urban development, in the form of residential subdivisions, and actively farmed lands. The proposed project would adjoin existing subdivisions to the north and rural residential development and supporting structures and agricultural lands to the east, south, and west. The proposed project would extend the existing urban area southward and would not physically divide an established community. Therefore, there would be no impact.

[1] This assumes 0.98 ton production per acre of orchard and $3,524 revenue per ton of almonds. With the increase in production per acre and crop prices, the loss of revenue would likely increase.



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Figure 3-1
City of Manteca Land Use Designations

Impact LU-2: Incompatibility with Existing or Future Land Uses (Less than Significant)

The proposed project would extend existing urban development southward. To the south, west, and east, the project site abuts existing farmland. In the short term these two uses could be incompatible, particularly if residents complain about standard agricultural practices.

The City has adopted a right-to-farm ordinance that requires developers of new subdivisions adjacent to agricultural land to notify new homebuyers that agricultural uses may present problems, such as dust, noise, and odors. This ordinance reduces the potential impact of short-term land use conflicts between residential uses on the project site and adjacent agricultural uses, thus minimizing any need for land conversion from agricultural uses to nonagricultural uses. But it will not eliminate the physical impacts.

In the longer term, County and City zoning changes in adjacent lands would eliminate the incompatibility. According to the County General Plan, much of the area south of State Route 120 is planned for future annexation, which would result in future urbanization. The City General Plan has designated parcels to the east and west of the project site as LDR and parcels to the south of the project site as Urban Reserve-LDR (UR-LDR). The City General Plan describes the LDR designation as accommodating single-family residential development at a density of 2.1 to 8 dwelling units per acre. UR-LDR is applied to many properties around the perimeter of Manteca, reserving areas currently undeveloped and perhaps in agricultural production, but expected to be converted to urban uses at some point. The parcels towards the south side of project site are expected to be as LDR when the land is ultimately annexed to the City.

Currently, eastern portions of the Pillsbury Estates site are zoned for MDR and HDR. The proposed project would develop these parcels (16.4 acres) as LDR. This would require a general plan amendment to redesignate the parcels. As part of the proposed project, the General Plan would be amended to designate these parcels as LDR. This impact would be considered less than significant. No mitigation is required.

Impact LU-3: Conflict with an Applicable Local Habitat Conservation Plan or Natural Community Conservation Plan (Less than Significant with Mitigation)

The County and the City are signatories to the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) and thereby are bound to carry out its provisions. Potential impacts on SJMSCP-covered species (e.g., Swainson's hawk [*Buteo swainsoni*] and migratory birds) and proposed mitigation measures for those impacts pursuant to the SJMSCP are addressed in Chapter 5, "Biological Resources," of this EIR.

Implementation of Mitigation Measure BIO-3, which is consistent with the SJMSCP, would reduce any potential conflicts with the SJMSCP to less than significant levels.

Impact AG-1: Direct Conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Other Farmland to Nonagricultural Use (Significant and Unavoidable)

The proposed project would result in the direct conversion of 240 acres of Farmland of Statewide Importance to nonagricultural uses. This is considered a significant impact. To implement the goals and objectives of the City General Plan and mitigate impacts caused by new development in Manteca, the City requires payment of an agricultural mitigation fee. This fee is intended to mitigate the loss of productive agricultural lands converted for urban uses in the Manteca by permanently protecting agricultural lands planned for agricultural use and working with farmers who voluntarily wish to place conservation easements on their land with fair compensation for such easements. This fee is collected by the City before the issuance of building permits and determined by the fee schedule in effect on the date that the tentative map or parcel map application is deemed complete or the date a permit is issued. The agricultural mitigation fee schedule is established by Manteca Municipal Code Chapter 13.42, "Agricultural Mitigation Fee." Because the proposed project would convert agricultural land to nonagricultural uses, it is subject to this fee.

Implementation of Mitigation Measure AG-1 would reduce this impact, but not to a less-than-significant level. No other feasible mitigation is available to mitigate the direct conversion of Farmland of Statewide Importance to nonagricultural uses. Therefore, this impact is considered significant and unavoidable.

Mitigation Measure AG-1: Pay Agricultural Mitigation Fee

The project proponent shall pay the agricultural mitigation fee as required by Manteca Municipal Code Chapter 13.42.

Impact AG-2: Conflict with a Williamson Act Contract (No Impact)

According to the County, there are no Williamson Act lands on or adjacent to the project site. There would be no impact. No mitigation is required.

Impact AG-3: Other Changes in the Existing Environment That, Due to Their Location or Nature, Could Result in Conversion of Farmland to Nonagricultural Use (No Impact)

There are no other changes expected to the existing environment; therefore, there would be no impacts. No mitigation is required.

Chapter 4
Air Quality

Introduction

This chapter discusses federal, state, and local regulations related to air quality that would apply to the Evans Estates–Pillsbury Estates Project (proposed project). It also describes existing conditions related to air quality in the project area. It then describes impacts on air quality that would result from the proposed project and proposes mitigation measures where necessary.

The key sources of information used in the preparation of this section are listed below.

- ARB Databases: Aerometric Data Analysis and Management System (ADAM) (California Air Resources Board 2007),
- AirData (U.S. Environmental Protection Agency 2007),
- *Transportation Project Level Carbon Monoxide Protocol* (Garza et al. 1997), and
- *Guide for Assessing and Mitigating Air Quality Impacts* (San Joaquin Valley Air Pollution Control District 2002).

Environmental Setting

Regulatory Setting

This section discusses the local, state, and federal policies and regulations that are relevant to the analysis of air quality in the project area.

Air pollution control programs were established in California before federal requirements were enacted. However, federal Clean Air Act (CAA) legislation in the 1970s resulted in a gradual merging of state and federal air quality programs, particularly those relating to industrial sources. Air quality management programs developed by California since the late 1980s have, in general, responded to requirements established by the CAA.

Enactment of the California Clean Air Act (CCAA) in 1988 and the CAA Amendments of 1990 has produced additional changes in the structure and administration of air quality management programs. The CCAA requires preparation of an air quality attainment plan for any area that violates state standards for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), or ozone. Locally prepared attainment plans are not required for areas that violate the state standards for particulate matter 10 microns or less in diameter (PM10), but the California Air Resources Board (ARB) currently is addressing PM10 attainment issues.

The air quality management agencies of direct importance in San Joaquin County include the U.S. Environmental Protection Agency (EPA), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and ARB. EPA has established federal standards for which ARB and SJVAPCD have primary implementation responsibility. ARB and SJVAPCD are responsible for ensuring that state standards are met. SJVAPCD is responsible for implementing strategies for air quality improvement and recommending mitigation measures for new growth and development. At the local level, air quality is managed through land use and development planning practices, which are implemented in the county through the general planning process. SJVAPCD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws.

The state and federal government have established standards for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). State and federal standards for a variety of pollutants are summarized in Table 4-1.

Federal

The CAA, enacted in 1963 and amended several times thereafter (including the 1990 amendments), establishes the framework for modern air pollution control. The CAA directs EPA to establish ambient air standards for six pollutants: CO, SO_2, NO_2, particulate matter, ozone, and lead. The standards are divided into primary and secondary standards. Primary standards are designed to protect human health, including the health of "sensitive" populations, such as asthmatics, children, and the elderly, within an adequate margin of safety. Secondary standards are designed to protect the public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The primary legislation that governs federal air quality regulations is the CAA Amendments of 1990. The CAA amendments delegate primary responsibility for clean air to EPA. EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies.

Table 4-1. Ambient Air Quality Standards Applicable in California

			Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
Pollutant	Symbol	Average Time	California	National	California	National	California	National
Ozone*	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide (Lake Tahoe only)	CO	8 hours	9	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual average	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	NA	339	NA	If exceeded	NA
Sulfur dioxide	SO_2	Annual average	NA	0.030	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable particulate matter	PM10	Annual arithmetic mean	NA	NA	20	NA	NA	NA
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	NA	NA	12	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
NA = not applicable.

* The U.S. Environmental Protection Agency recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 part per million. EPA issued a final rule that revoked the 1-hour standard on June 15, 2005; however, the California 1-hour ozone standard will remain in effect.

Source: California Air Resources Board 2008.

Areas that do not meet the federal ambient air quality standards shown in Table 4-1 are called *nonattainment* areas. For these nonattainment areas, the CAA requires states to develop and adopt State Implementation Plans (SIPs), which are air quality plans that show how air quality standards will be attained. The SIP, which is reviewed and approved by EPA, must demonstrate how the federal standards will be achieved. Failing to submit a plan or secure approval could lead to the denial of federal funding and permits for improvements such as highway projects and sewage treatment plants. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, EPA is directed to prepare a federal implementation plan.

State

Responsibility for achieving California's air quality standards, which are more stringent than federal standards, is placed on ARB and local air districts and is to be achieved through district-level air quality management plans that are incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. Traditionally, ARB established state air quality standards while maintaining oversight authority for air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs. Responsibilities of air districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required by the California Environmental Quality Act (CEQA).

The CCAA of 1988 added to the authority and responsibilities of air districts substantially. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA focuses on attainment of the state ambient air quality standards, which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards.

The CCAA requires designation of attainment and nonattainment areas with respect to state ambient air quality standards. The CCAA can also require a local or regional air district to prepare and adopt an air quality attainment plan if the district violates state air quality standards for CO, SO_2, NO_2, or ozone. The plan is specifically designed to attain state air quality standards and achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. Where an air district is unable to achieve a 5% annual reduction in district-wide emissions of each nonattainment pollutant or its precursors, the adoption of "all feasible measures" on an expeditious schedule is acceptable as an alternative strategy (Health and Safety Code Section 40914[b][2]). No locally

prepared attainment plans are required for areas that violate the state PM10 standards, but ARB is currently addressing PM10 attainment issues.

The CCAA requires state air quality standards to be met as expeditiously as practicable but, unlike the federal CAA, does not set precise attainment deadlines. Instead, the act establishes increasingly stringent requirements for areas that require more time to achieve the standards. The CCAA emphasizes the control of "indirect" and "area-wide" sources of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and establish traffic control measures (TCMs). The CCAA does not define *indirect* or *area-wide* sources. However, Section 110 of the CAA defines an indirect source as:

> a facility, building, structure, installation, real property, road, or highway, which attracts, or may attract, mobile sources of pollution. Such term includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply.

TCMs are defined in the CCAA as "any strategy to reduce trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions."

The ARB *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) provides ARB recommendations for the siting of new sensitive land uses (including residences) near freeways, distribution centers, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline stations. The handbook recommends that new development be placed at a distance from such facilities. The recommendations contained in ARB's *Air Quality and Land Use Handbook* are not required by any regulations and are entirely voluntary.

In 2002, Assembly Bill (AB) 1493 required ARB to develop and adopt the nation's first greenhouse gas (GHG) emissions standards for automobiles. The legislature declared, through AB 1493, that global warming was a matter of increasing concern for public health and the environment in the state. It cited several risks that California faces from climate change, including a reduction in the state's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in the number of wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. Further, the legislature stated that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs.

California's AB 32, the Global Warming Solutions Act of 2006, codifies the state's GHG emissions target by requiring the state's emissions related to global warming to be reduced to 1990 levels by 2020. In the short term, it directs ARB to enforce a statewide cap, which would begin phasing in 2012. AB 32 was signed and passed into law by Governor Arnold Schwarzenegger on September 27, 2006.

Local

SJVAPCD has adopted emission thresholds to determine the level of significance of a project's emissions. In addition, the proposed project may be subject to the following SJVAPCD rules. This list of rules may not be all encompassing, as additional SJVAPCD rules may apply to the project as specific developments are identified. These are rules that have been adopted by SJVAPCD to reduce emissions throughout the San Joaquin Valley. Failure to comply with any applicable SJVAPCD rule would be a violation of said rule and subject to SJVAPCD enforcement action.

SJVAPCD Rule 2201 (New and Modified Stationary-Source Review Rule). This rule applies to all new stationary sources and all modifications to existing stationary sources subject to SJVAPCD permit requirements that, after construction, emit or may emit one or more pollutants regulated by the rule.

SJVAPCD Rule 2020 (Exemptions, Permits). This rule exempts laboratory testing equipment used for chemical and physical analysis from permit requirements in SJVAPCD, provided that they emit no hazardous air pollutants and less than 2.0 pounds per day (75 pounds per year) of any other pollutant. This means that laboratories that emit even small quantities of hazardous air pollutants would be required to apply for and obtain permits from SJVAPCD.

SJVAPCD Rule 3110 (Air Toxic Fees). This is a program for facilities that emit toxic air contaminants. It is noted here that hospitals that do not use ethylene oxide for sterilizers are defined as *de minimus* facilities and are not subject to fee requirements.

SJVAPCD Rule 3135 (Dust Control Plan Fees). This rule requires the project applicant to submit a fee in addition to a dust control plan. The purpose of this rule is to recover SJVAPCD's cost for reviewing these plans and conducting compliance inspections.

SJVAPCD Rule 4002 (National Emission Standards for Hazardous Air Pollutants). This rule applies to any portion of an existing building that will be renovated, partially demolished, or removed. Prior to any demolition activity, an asbestos survey of existing structures on the project site may be required to identify the presence of any asbestos-containing building material (ACBM). Any identified ACBM having the potential for disturbance must be removed by a certified asbestos contractor in accordance with California Occupational Safety and Health Administration requirements.

SJVAPCD Rule 4101 (Visible Emissions). This rule prohibits emissions of visible air contaminants to the atmosphere and applies to any source operation that emits or may emit air contaminants.

SJVAPCD Rule 4102 (Nuisance). This rule applies to any source operation that emits or may emit air contaminants or other materials. In the event that the

project or construction of the project creates a public nuisance, it could be in violation and subject to SJVAPCD enforcement action.

SJVAPCD Rule 4103 (Open Burning). This rule regulates the burning of agricultural material. Rule 4103 explicitly states that agricultural material shall not be burned when the land use is converted from agriculture to nonagricultural purposes.

SJVAPCD Rule 4306 (Boilers, Steam Generators, and Process Heaters—Phase 3). This rule requires all boilers and steam generators with a heat input rating greater than 5 million British thermal units per hour to achieve certain exhaust limits for oxides of nitrogen (NO_x) and CO. This rule was established in 2003 as part of the strategy for achieving ozone attainment.

SJVAPCD Rule 4601 (Architectural Coatings). This rule limits volatile organic compounds (VOC) from architectural coatings. This rule specifies storage, cleanup, and labeling requirements for architectural coatings.

SJVAPCD Rule 4641 (Cutback, Slow-Cure, and Emulsified Asphalt, Paving, and Maintenance Operations). If asphalt paving will be used, paving operations will be subject to this rule. This rule applies to the manufacture and use of cutback asphalt, slow-cure asphalt, and emulsified asphalt for paving and maintenance operations.

SJVAPCD Rule 4663 (Organic Solvent Cleaning, Storage, and Disposal). This rule includes restrictions on the types of solvents that may be used and restrictions on the organic content of solvents used for cleaning, especially for cleaning related to medical devices and pharmaceuticals.

SJVAPCD Rule 4701 (Internal Combustion Engines—Phase 1). This rule limits the emissions of NO_x, CO, and VOC from internal combustion engines. These limits are not applicable to standby engines as long as they are used fewer than 200 hours per year (e.g., for testing during non-emergencies).

SJVAPCD Rule 4702 (Internal Combustion Engines—Phase 2). This rule limits the emissions of NO_x, CO, and VOC from spark-ignited internal combustion engines.

SJVAPCD Rule 4901 (Wood-Burning Fireplaces and Wood-Burning Heaters). This rule prohibits the sale of wood heaters that are not EPA-certified and incorporates density limits (devices installed per acre) on the number of wood stoves, wood heaters, and fireplaces in new construction. Specifically, no person shall:

- install a wood-burning fireplace in a new residential development with a density greater than two (2) dwelling units per acre,
- install more than two (2) EPA Phase II–certified wood-burning heaters per acre in any new residential development with a density equal to or greater than three (3) dwelling units per acre,

- install more than one (1) wood-burning fireplace or wood-burning heater per dwelling unit in any new residential development with a density equal to or less than two (2) dwelling units per acre, or
- sell or transfer any real property that contains a wood-burning heater without first ensuring that each wood-burning heater included in the real property is EPA Phase II certified, pellet fueled, permanently rendered inoperable, or removed.

SJVAPCD Rule 4902 (Residential Water Heaters). The purpose of this rule is to limit nitrogen oxides emissions from residential water heaters.

SJVAPCD Rule 9510 (Indirect-Source Review). This rule fulfills SJVAPCD emission-reduction commitments in PM10 and ozone attainment plans through design features and on-site measures. Rule 9510 requires emission reductions for construction and operational emissions. For construction emissions, Rule 9510 requires a 20% reduction of total NO_x emissions and a 45% reduction of the total PM10 exhaust emissions. For operational emissions, Rule 9510 requires 33.3% of the project's operational baseline NO_x and 50% of the project's operational baseline PM10 emissions to be reduced over a period of 10 years. If the required emissions reductions are not achieved through traditional means, projects may purchase offsets on a per-ton basis from SJVAPCD through Rule 9510's off-site emissions reduction fee program to comply with the requirements of Rule 9510. Rule 9510 applies to any applicant who seeks to gain final discretionary approval for a development project, or any portion thereof, that, upon full buildout, will include any one of the following:

- 50 residential units,
- 2,000 square feet of commercial space,
- 25,000 square feet of light industrial space,
- 100,000 square feet of heavy industrial space,
- 20,000 square feet of medical office space,
- 39,000 square feet of general office space,
- 9,000 square feet of educational space,
- 10,000 square feet of government space,
- 20,000 square feet of recreational space, or
- 9,000 square feet of space not identified above.

SJVAPCD Regulation VIII (Fugitive PM10 Prohibitions). This is a series of rules (Rules 8011–8081) designed to reduce PM10 emissions (predominantly dust/dirt) generated by human activity, including construction, road construction, bulk materials storage, landfill operations, and other activities. These rules correspond to the following categories:

- Rule 8011: General Requirements

- Rule 8021: Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities
- Rule 8031: Bulk Materials
- Rule 8041: Carryout and Trackout
- Rule 8051: Open Areas
- Rule 8061: Paved and Unpaved Roads
- Rule 8071: Unpaved Vehicle/Equipment Traffic Areas
- Rule 8081: Agricultural Sources

Existing Conditions

This section discusses the existing conditions as they relate to air quality in the project area.

Regional Climate and Meteorology

The regional climate is considered "inland Mediterranean" and characterized by warm, dry summers and cool winters. Summer high temperatures often exceed 100° Fahrenheit, averaging in the low 90s in the northern valley and high 90s in the south.

Although marine air, in general, flows into the basin from the San Joaquin Delta, the surrounding mountain ranges restrict air movement through and out of the valley. Wind speed and direction influence the dispersion and transportation of ozone precursors, PM10, and CO. The more wind flow, the less accumulation of these pollutants.

The vertical dispersion of air pollutants in the San Joaquin Valley Air Basin (SJVAB) is limited by the presence of a persistent temperature inversion (warm air over cool air). Because of differences in air density, the air above and below the inversion does not mix. However, ozone and its precursors do mix and react, producing higher concentrations under the inversion, and they trap directly emitted pollutants, such as CO.

Precipitation and fog tend to reduce or limit pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water soluble, so precipitation and fog tend to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the valley decreases from north to south, with about 20 inches in the north, 10 inches in the middle, and fewer than 6 inches in the southern part of the valley.

Criteria Pollutants

Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants (Table 4-1) and the monitoring data collected in the region.

The federal and state governments have established ambient air quality standards for the following six criteria pollutants: ozone, CO, NO_2, SO_2, particulate matter (PM10 and particulate matter smaller than 2.5 microns or less in diameter [PM2.5]), and lead. Ozone, NO_2, and particulate matter are generally considered to be regional pollutants, because these pollutants or their precursors affect air quality on a regional scale. Pollutants such as CO, SO_2, lead, and particulate matter are considered to be local pollutants that tend to accumulate in the air locally. Particulate matter is considered to be a localized pollutant as well as a regional pollutant.

Within the SJVAB, CO, PM10, and ozone are considered pollutants of concern. Brief descriptions of these pollutants are provided below, and a complete summary of California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) is provided in Table 4-1. Toxic air contaminants (TACs) are also discussed below, although no state or federal ambient air quality standards exist for these pollutants.

Ozone

Ozone is a respiratory irritant that increases susceptibility to respiratory infections and causes severe eye, nose, and throat irritation. It is also an oxidant that can cause substantial damage to vegetation, including leaf discoloration and cell damage. In addition, ozone attacks synthetic rubber, textiles, and other materials.

Ozone is not emitted directly into the air. Rather, it is formed by a photochemical reaction in the atmosphere. The ozone precursors, reactive organic gases (ROG) and NO_x, react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. ROG and NO_x are emitted mainly by mobile sources and stationary combustion equipment.

State and federal standards for ozone have been set for an 8-hour averaging time. The state 8-hour standard is 0.07 parts per million (ppm), not to be exceeded, while the federal 8-hour standard is 0.075 ppm, not to be exceeded more than three times in any 3-year period. The state has established a 1-hour ozone standard of 0.09 ppm, not to be exceeded, and the federal 1-hour ozone standard of 0.12 ppm recently has been replaced by the 8-hour standard. State and federal standards are summarized in Table 4-1.

Carbon Monoxide

CO is essentially inert to plants and materials but can have significant effects on human health. CO is a public health concern because it combines readily with

hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when light winds combine with the ground-level temperature inversions (typically from evening through early morning). These conditions result in a reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emissions rates at low air temperatures.

State and federal CO standards have been set for 1- and 8-hour averaging times. The state 1-hour standard is 20 ppm, not to be exceeded, whereas the federal 1-hour standard is 35 ppm, not to be exceeded more than 1 day per year. The state 8-hour standard is 9 ppm, not be exceeded, and the federal 8-hour standard is 9 ppm, not to be exceeded more than 1 day per year. State and federal standards are summarized in Table 4-1.

Inhalable Particulates

Inhalable particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode some materials. Particulate emissions are generated by a wide variety of sources, including agricultural activities, industrial operations, vehicles (e.g., dust suspended by vehicle traffic and construction equipment), and secondary aerosols (formed by reactions in the atmosphere).

The federal and state ambient air quality standard for particulate matter applies to two classes of particulates: PM10 and PM2.5. The state PM10 standards are 50 micrograms per cubic meter ($\mu g/m^3$) as a 24-hour average and 20 $\mu g/m^3$ as an annual arithmetic mean. The federal PM10 standard is 150 $\mu g/m^3$ as a 24-hour average. The federal PM2.5 standards are 15 $\mu g/m^3$ for the annual average and 35 $\mu g/m^3$ for the 24-hour average. The state PM2.5 standard is 12 $\mu g/m^3$ as an annual arithmetic mean. State and federal standards are summarized in Table 4-1.

Toxic Air Contaminants

TACs are pollutants that may increase mortality or serious illness or pose a present or potential hazard to human health. Health effects include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. Although ambient air quality standards exist for criteria pollutants, no standards exist for TACs.

Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, ARB consistently has found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a hazard index, is used to evaluate risk.

In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (AB 1807) created a California program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. The TAC of most concern with regard to the proposed project is diesel exhaust particulate matter, which was identified by ARB as a TAC in October 2000.

Greenhouse Gases and Climate Change/Global Warming

Global climate change is a problem caused by combined worldwide GHGs, and mitigating global climate change will require worldwide solutions. Combined gases in Earth's atmosphere, called atmospheric GHGs, play a critical role in Earth's radiation budget by trapping infrared radiation emitted from the surface that otherwise could have escaped into space. This phenomenon, known as the "greenhouse effect," keeps Earth's atmosphere near the surface warmer than it would be otherwise and allows for successful habitation by humans and other forms of life. Increases in these gases lead to more absorption of radiation and further warm the lower atmosphere, thereby increasing evaporation rates and temperatures near the surface. Emissions of GHGs in excess of natural ambient concentrations are thought to be responsible for the enhancement of the greenhouse effect, contributing to what is termed "global warming," a trend of unnatural warming of Earth's natural climate.

Naturally occurring GHGs include water vapor, carbon dioxide (CO_2), methane, nitrous oxide (N_2O), ozone, and certain fluorocarbons. Certain human activities, however, add to the levels of most of these naturally occurring gases. CO_2 is released to the atmosphere when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned. N_2O is emitted during agricultural and industrial activities as well as during combustion of solid waste and fossil fuels. CO_2 and N_2O are the two GHGs released in the greatest quantities from mobile sources that burn gasoline and diesel fuel. Because of the relatively long life of primary GHGs in the atmosphere, which results in accumulation over time and the well mixing of these gases in the atmosphere, their impact on the atmosphere is mostly independent of the point of emission.

Climate change is a global problem, and GHGs are global pollutants, unlike criteria air pollutants (such as ozone precursors) and TACs, which are pollutants of regional and local concern. Worldwide, California is the 12th to 16th largest emitter of CO_2 (California Energy Commission 2006) and is responsible for approximately 2% of the world's CO_2 emissions (California Energy Commission 2006).

The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC predicts substantial increases in temperatures globally of between 1.1° and 6.4° Celsius, depending on the scenario (Intergovernmental Panel on Climate Change 2007). This may affect

the natural environment in California by creating the following conditions, among others:

- rising sea levels along the California coastline, particularly in San Francisco and along the San Joaquin Delta, as a result of ocean expansion;
- extreme heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent;
- increases in heat-related human deaths, infectious diseases, and respiratory problems caused by deteriorating air quality;
- reduced snowpack and streamflow in the Sierra Nevada, affecting winter recreation and water supplies;
- potential increases in the severity of winter storms, affecting peak streamflows and flooding;
- changes in growing season conditions that could affect California agriculture, causing variations in crop quality and yield; and
- changes in distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

These changes in California's climate and ecosystems are occurring at a time when California's population is expected to increase from 34 million to 59 million by 2040 (California Energy Commission 2005). As such, the number of people potentially affected by climate change, as well as the amount of anthropogenic GHG emissions expected under a "business as usual" scenario, is expected to increase. Similar changes to those noted above for California also would occur in other parts of the world, with regional variations in the specific resources affected and vulnerability to adverse effects.

GHG emissions in California are attributable to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2006) as well as natural processes. Transportation is responsible for 41% of the state's GHG emissions, followed by the industrial sector (23%), electricity generation (20%), agriculture and forestry (8%), and other sources (8%) (California Energy Commission 2006). Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion, among other sources. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills, among other sources. Sinks of CO_2 include uptake by vegetation and dissolution into the ocean.

SJVAPCD has not yet established significance thresholds or guidance for evaluating impacts associated with GHG emissions and their contribution to climate change.

Monitoring Data

Monitoring data concentrations are typically expressed in terms of ppm or $\mu g/m^3$. The nearest air quality monitoring station in the vicinity of the project area is the Stockton-Hazelton monitoring station, located at 1593 East Hazelton Street in Stockton, which monitors ozone, CO, PM10, PM2.5, and NO_2. Air quality monitoring data from the Stockton-Hazelton monitoring station is summarized in Table 4-2. These numbers represent air quality monitoring data for the last 3 years (2005–2007) in which complete data are available.

As shown in Table 4-2, the Stockton-Hazelton monitoring station has experienced no violations of the federal 1-hour ozone standard, nine violations of the state 1-hour ozone standard, four violations of the federal 8-hour ozone standard, no violations of the federal or state CO standards, 132.9 violations of the state 24-hour PM10 standard, and 0.118 violation of the federal 24-hour PM2.5 standard during the 3-year monitoring period.

Table 4-2. Ambient Air Quality Monitoring Data Measured at the Stockton-Hazelton Monitoring Station

Pollutant Standards	2005	2006	2007
Ozone			
Maximum 1-hour concentration (ppm)	0.009	0.109	0.093
Maximum 8-hour concentration (ppm)	0.086	0.092	0.081
Number of days standard exceeded[a]			
NAAQS 1-hour (>0.12 ppm)	0	0	0
CAAQS 1-hour (>0.09 ppm)	3	6	0
NAAQS 8-hour (>0.08 ppm)	1	3	0
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	2.86	2.25	2.31
Maximum 1-hour concentration (ppm)	4.3	4.4	3.6
Number of days standard exceeded[a]			
NAAQS 8-hour (≥9.0 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
Particulate Matter (PM10)[b]			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	79.0	82.0	71.0
National[c] second-highest 24-hour concentration ($\mu g/m^3$)	76.0	80.0	68.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	84.0	85.0	75.0
State[d] second-highest 24-hour concentration ($\mu g/m^3$)	79.0	85.0	73.0
National annual average concentration ($\mu g/m^3$)	19.3	32.6	26.6
State annual average concentration ($\mu g/m^3$)[e]	29.8	33.4	27.7
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 $\mu g/m^3$)[f]	0.0	0.0	0.0
CAAQS 24-hour (>50 $\mu g/m^3$)[f]	46.5	62.9	23.5

Pollutant Standards	2005	2006	2007
Particulate Matter (PM2.5)			
National[c] maximum 24-hour concentration (μg/m^3)	63.0	47.0	52.0
National[c] second-highest 24-hour concentration (μg/m^3)	46.0	47.0	50.0
State[d] maximum 24-hour concentration (μg/m^3)	70.0	53.3	66.8
State[d] second-highest 24-hour concentration (μg/m^3)	68.0	51.7	59.4
National annual average concentration (μg/m^3)	12.5	13.1	12.9
State annual average concentration (μg/m^3) [e]	12.5	13.5	13.5
Number of days standard exceeded[a]			
NAAQS 24-hour (>65 μg/m^3)	0.009	0.109	0

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.
ppm = parts per million.
μg/m^3 = micrograms per cubic meter.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2007; U.S. Environmental Protection Agency 2007.

Attainment Status

If monitored pollutant concentrations in an area meet state or federal standards over a designated period of time, the area is classified as an *attainment area* for that pollutant. If monitored pollutant concentrations violate the standards, the area is classified as a *nonattainment area* for that pollutant. If the data are inadequate to determine whether a pollutant is violating the standard, the area is designated unclassified.

EPA has classified San Joaquin County as an extreme nonattainment area for the 1-hour ozone standard and a serious nonattainment area for the 8-hour ozone standard. However, EPA revoked the 1-hour ozone standard on June 15, 2005; therefore, the county is no longer subject to the standard. For the CO standard, EPA has classified the Stockton Urbanized Area (May 16, 1984, 49 Federal Register [FR] 20651) as a moderate (≤ 12.7 ppm) maintenance area, and the rest of the county as an unclassified/attainment area. EPA has classified the county as a serious nonattainment area for PM10 and a nonattainment area for PM2.5.

ARB has classified the county as a severe nonattainment area for the 1-hour ozone standard, an attainment area for CO, and a nonattainment area for PM10

and PM2.5. The county's attainment status for each of these pollutants relative to the NAAQS and CAAQS is summarized in Table 4-3.

Table 4-3. Federal and State Attainment Status for San Joaquin County

Pollutant	Federal	State
1-hour Ozone	Extreme nonattainment[a]	Severe nonattainment
8-hour Ozone	Serious nonattainment	N/A[b]
CO	Moderate (≤ 12.7 ppm) maintenance area for the Stockton Urbanized Area (May 16, 1984, 49 FR 20651); unclassified/attainment area for the rest of San Joaquin County	Attainment
PM10	Serious nonattainment for the San Joaquin Valley planning area; unclassified/attainment for the rest of San Joaquin County	Nonattainment
PM2.5	Nonattainment	Nonattainment

[a] Previously in nonattainment area; no longer subject to the 1-hour standard because of EPA revocation of the 1-hour standard on June 15, 2005.

[b] ARB approved the 8-hour ozone standard on April 28, 2005, and it became effective on May 17, 2006. However, ARB has not yet designated areas for this standard.

Sensitive Land Uses

SJVAPCD defines a sensitive receptor as a facility that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants where there is reasonable expectation of continuous human exposure according to the averaging period for ambient air quality standards (e.g., 24 hours, 8 hours, 1 hour). All but one of the existing residences located on the project site would be removed as part of the project. The remaining existing residence as well as the existing residential subdivisions adjacent to the project site to the north would be considered sensitive receptors.

Impact Analysis

Approach and Methodology

This section discusses the approach and methodology used to assess impacts of the proposed project on air quality; thresholds used to determine whether an impact would be significant; individual impacts relative to the thresholds; mitigation measures to minimize, avoid, rectify, reduce, eliminate, or compensate for significant impacts; and overall significance of the impact with mitigation incorporated.

Construction-Related Emissions

A review of SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* indicates that SJVAPCD considers PM10 to be the primary pollutant of concern from construction activities. The amount of PM10 emitted during construction activities varies greatly depending on the level of activity, the specific operations taking place, the equipment being operated, soil characteristics, and weather conditions. Despite this variability in emissions, experience has shown that several feasible control measures can be reasonably implemented to reduce PM10 emissions during construction.

Construction of the proposed project would result in the temporary generation of emissions of ROG, NO_x, CO, PM10, and PM2.5, which would result in short-term impacts on ambient air quality in the area. Emissions would originate from the exhaust of mobile and stationary construction equipment, exhaust from employees' vehicles, dust from clearing the land, exposed soil eroded by wind, and ROG from architectural coatings and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, the length of the construction period, the specific construction operations, the types of equipment, the number of personnel, wind and precipitation conditions, and soil moisture content.

The URBEMIS 2007 (version 9.2.4) model was used to estimate emissions associated with construction of the proposed project. To estimate construction emissions, URBEMIS 2007 analyzes the types of construction equipment to be used and the duration of the construction period associated with each of the land uses, since construction impacts vary substantially from day to day. For the proposed project, construction is expected to occur over a 5-year period, beginning in January 2010. Because a detailed list of construction equipment was not available, URBEMIS default values were used.

Operational Emissions

Area and Mobile Source Emissions

Two types of air pollutant sources are expected during operation of the proposed project: area and mobile sources. *Area sources* can include area-wide, natural, or groups of stationary sources (such as dry cleaners and gas stations). At the project site, area sources would be associated with natural gas combustion for heating (i.e., water heaters and furnaces), landscaping activities, consumer products (e.g., automotive products, household cleaners, and personal care products), and periodic painting for facility upkeep. *Mobile sources* would be associated with vehicle trips, including those of employees, deliveries, and maintenance activities. The primary operational emissions associated with the proposed project would be ozone precursors, CO, PM10, PM2.5, and CO_2, emitted as vehicle exhaust.

URBEMIS 2007 (version 9.2.4) is a computer program used to estimate emissions from construction, vehicle trips, and fuel use resulting from land use development projects. URBEMIS 2007 estimates emissions based on the type of land use and the area source and vehicular emissions typically associated with the land use. Area emissions associated with the proposed project were estimated by ICF Jones & Stokes staff using the URBEMIS 2007 model for the Evans Estates site, the Pillsbury Estates site, and the total project site (both developments) for 2009 through 2014. Mobile source emissions were also evaluated by ICF Jones & Stokes using the model for 2009 through 2014 for the same sites described above.

An evaluation to determine whether CO hot spots would occur at roadway intersections in the vicinity of the project site was conducted through CO dispersion modeling. The effects of operational CO emissions were evaluated using the CALINE4 dispersion model developed by the California Department of Transportation (Caltrans) (Benson 1989) for the existing year (2008) and the cumulative year (2025) with and without the project. CALINE4 treats each segment of a roadway as a separate emissions source that produces a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments. Detailed methodology of the CO analysis is provided in Appendix C.

Greenhouse Gas Emissions and Climate Change

Under CEQA, an environmental impact report must identify and focus on the significant environmental effects of a proposed project. A "significant effect" is one that would cause a substantial, or potentially substantial, adverse change in the environment (Public Resources Code [PRC] 21068). According to the CEQA Guidelines, certain criteria must be examined to determine if a project will have a significant effect on the environment. However, as of the writing of this report, the agencies with jurisdiction over air quality regulation and GHG emissions, such as ARB and SJVAPCD, have not established regulations, guidance, methodologies, significance thresholds, standards, or analysis protocols for the assessment of GHG emissions and climate change. Thus, a methodology to establish an appropriate baseline or develop a project-level inventory for the proposed project, which would allow for an appropriate analysis of the project's impact on climate change or the impact of climate change on the proposed project, has not yet been established.

Thresholds of Significance

This discussion uses the thresholds identified below, unless otherwise specified, to determine the significance of impacts associated with the proposed project. The criteria for determining the significance of impacts related to air quality were developed in accord with the environmental checklist form in Appendix G of the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). An impact related to air quality is considered significant if it would

- conflict with or obstruct implementation of an applicable air quality management plan,
- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including the release of emissions that exceed quantitative thresholds for ozone precursors),
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

The CEQA Guidelines further state that the significance criteria established by the applicable air quality management or air pollution control district may be employed to make the above determinations. SJVAPCD has specified significance thresholds within its *Guide for Assessing and Mitigating Air Quality Impacts* (San Joaquin Valley Air Pollution Control District 2002) to determine the significance of air quality impacts from projects located within the SJVAB.

SJVAPCD has determined that compliance with its Regulation VIII Fugitive PM10 Prohibitions, including implementation of all feasible control measures specified in its *Guide for Assessing and Mitigating Air Quality Impacts*, is sufficient mitigation to minimize adverse air quality effects from construction-related PM10 emissions to less-than-significant levels (San Joaquin Valley Air Pollution Control District 2002). Since the publication of SJVAPCD's guidance manual, SJVAPCD has revised the various rules that make up Regulation VIII. Guidance from SJVAPCD indicates that implementation of a dust control plan would satisfy all of the requirements of SJVAPCD Regulation VIII (Cadrett pers. comm.). Further consultation finds that, though explicit thresholds for construction-related emissions of ozone precursors are not enumerated in the *Guide for Assessing and Mitigating Air Quality Impacts*, SJVAPCD believes that a significant impact occurs when construction emissions of ROG or NO_x exceed 10 tons per year (Barber pers. comm.).

On December 15, 2005, SJVAPCD adopted Rule 9510, Indirect Source Review (ISR). This rule fulfills SJVAPCD's emissions-reduction commitments in PM10 and ozone attainment plans through design features and on-site measures. Rule 9510 requires implementation of control measures or the purchase of emissions offsets to mitigate construction-related NO_x and PM10 emissions. SJVAPCD's ISR requires a 20% reduction in total NO_x emissions and a 45% reduction in total PM10 exhaust emissions from construction activities compared to the statewide fleet average. In addition, Rule 9510 requires a 33.3% reduction in a project's operational baseline NO_x emissions and a 50% reduction in of a project's operational baseline PM10 emissions over a period of 10 years. Compliance with Rule 9510 is separate from the CEQA process, though the control measures used to comply with Rule 9510 may be used to mitigate CEQA impacts (Barber pers. comm.).

A project applicant may enter into a development mitigation contract (also known as an air quality mitigation agreement) with SJVAPCD to reduce project emissions to a less-than-significant level (Barber pers. comm.). With this contract, the project applicant enters into a voluntary agreement with SJVAPCD to mitigate/reduce project emissions beyond the requirements of Rule 9510 through the payment of fees (on a per-ton basis) to SJVAPCD. If the fees are adequate to offset project-related emissions to a level below SJVAPCD thresholds, then the project emissions are considered less than significant (Barber pers. comm.).

SJVAPCD thresholds used in determining the significance of project impacts are summarized below. The proposed project could result in a significant impact on air quality if it would

- expose sensitive receptors to substantial pollutant concentrations,
- produce more than 10 tons of ROG per year,
- produce more than 10 tons of NO_x per year,
- exceed the NAAQS or CAAQS for CO (9 ppm, 8-hour average; 20 ppm, 1-hour average), or
- not comply with SJVAPCD Regulation VIII regarding particulate matter emissions from construction activities. Compliance with SJVAPCD Regulation VIII and the local zoning code would reduce particulate matter emissions impacts to levels that would be considered less than significant by SJVAPCD.

Impacts and Mitigation Measures

Impact AQ-1: Generation of Emissions of ROG and NO_x in Excess of SJVAPCD Thresholds (Less than Significant with Mitigation)

Construction Emissions

As noted above, compliance with Regulation VIII, through implementation of a dust control plan, would be adequate to reduce any potentially significant air quality effects generated by construction-related emissions of PM10 to less-than-significant levels. Failure to comply with Regulation VIII would result in a significant construction-related air quality impact. Tables 4-4 through 4-9 summarize unmitigated and mitigated project-related emissions during the construction period (2009–2014). Tables 4-4 and 4-5 represent the Evans Estates project, Tables 4-6 and 4-7 represent the Pillsbury Estates project, and Tables 4-8 and 4-9 represent the combined project.

Table 4-4. Annual Total Emissions Unmitigated (tons/year) for the Evans Estates Project

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2009						
Construction Emissions	1.14	1.53	1.65	0.12	0.10	198.40
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2010						
Construction Emissions	2.82	2.65	3.35	5.81	1.33	419.69
Operational Emissions						
Area Source	0.92	0.21	3.91	0.59	0.57	275.88
Mobile Source	0.70	1.18	7.68	0.66	0.15	795.32
Area + Mobile Source	1.62	1.39	11.59	1.25	0.72	107.12
Operational + Construction	4.44	4.04	14.94	2.60	1.05	526.81
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2011						
Construction Emissions	2.31	2.33	2.79	4.9	1.13	374.42
Operational Emissions						
Area Source	3.59	0.81	15.13	2.28	2.19	1,066.72
Mobile Source	2.71	4.58	29.69	2.57	0.60	3,075.25
Area + Mobile Source	6.30	5.39	44.82	4.85	2.79	4,123.97
Operational + Construction	8.61	7.72	47.61	9.75	3.92	4,498.39
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2012						
Construction Emissions	1.91	2.17	2.39	4.19	0.97	345.95
Operational Emissions						
Area Source	5.74	1.31	24.19	3.64	3.51	1,705.83
Mobile Source	4.34	7.33	47.47	4.11	0.96	4,917.74
Area + Mobile Source	10.08	8.64	71.66	7.75	4.47	6,623.57
Operational + Construction	11.99	10.81	74.05	11.94	5.44	6,969.52
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	**1.99**	**0.81**			N/A	

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2013						
Construction Emissions	1.77	2.03	2.19	3.97	0.92	338.35
Operational Emissions						
Area Source	7.47	1.69	31.49	4.75	4.58	2,220.80
Mobile Source	5.65	9.54	61.80	5.35	1.25	6,402.35
Area + Mobile Source	13.12	11.23	93.29	10.10	5.83	8,623.15
Operational + Construction	16.14	13.26	95.48	14.07	6.75	8,961.5
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	6.14	3.26			N/A	
2014						
Operational Emissions						
Area Source	9.07	2.06	38.27	5.78	5.56	2,698.98
Mobile Source	6.87	11.59	75.11	6.50	1.52	7,780.90
Area + Mobile Source	15.94	13.65	113.38	12.28	7.08	10,479.88
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	5.94	3.65			N/A	

Table 4-5. Annual Total Emissions Mitigated (tons/year) for the Evans Estates Project

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2009						
Construction Emissions	1.06	1.16	1.65	0.02	0.02	198.40
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2010						
Construction Emissions	2.82	2.24	3.35	1.35	0.33	419.69
Operational Emissions						
Area Source	0.92	0.21	3.91	0.59	0.57	275.88
Mobile Source	0.70	1.18	7.68	0.66	0.15	795.32
Area + Mobile Source	1.62	1.39	11.59	1.25	0.72	107.12
Operational + Construction	4.44	3.63	14.94	2.60	1.05	526.81
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2011						
Construction Emissions	2.12	1.98	2.79	1.14	0.28	374.42
Operational Emissions						
Area Source	3.59	0.81	15.13	2.28	2.19	1,066.72
Mobile Source	2.71	4.58	29.69	2.57	0.60	3,075.25
Area + Mobile Source	6.30	5.39	44.82	4.85	2.79	4,123.97
Operational + Construction	8.42	7.37	47.61	5.13	3.07	4,498.39
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2012						
Construction Emissions	1.76	1.84	2.39	0.98	0.25	345.95
Operational Emissions						
Area Source	5.74	1.31	24.19	3.64	3.51	1,705.83
Mobile Source	4.34	7.33	47.47	4.11	0.96	4,917.74
Area + Mobile Source	10.08	8.64	71.66	7.75	4.47	6,623.57
Operational + Construction	11.84	10.48	74.05	8.73	4.72	6,969.52
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	**1.84**	**0.48**			N/A	
2013						
Construction Emissions	1.63	1.72	2.19	0.93	0.23	338.35

	ROG	NO_X	CO	PM10	PM2.5	CO_2
Operational Emissions						
Area Source	7.47	1.69	31.49	4.75	4.58	2,220.80
Mobile Source	5.65	9.54	61.80	5.35	1.25	6,402.35
Area + Mobile Source	13.12	11.23	93.29	10.10	5.83	8,623.15
Operational + Construction	14.75	12.95	95.48	11.03	6.06	8,961.5
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	4.37	3.26			N/A	
2014						
Operational Emissions						
Area Source	9.07	2.06	38.27	5.78	5.56	2,698.98
Mobile Source	6.87	11.59	75.11	6.50	1.52	7,780.90
Area + Mobile Source	15.94	13.65	113.38	12.28	7.08	10,479.88
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	5.94	3.65			N/A	

Table 4-6. Annual Total Emissions Unmitigated (tons/year) for the Pillsbury Estates Project

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2009						
Construction Emissions	1.68	2.54	2.57	3.58	0.86	319.90
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2010						
Construction Emissions	1.40	2.34	2.19	2.83	0.70	292.27
Operational Emissions						
Area Source	1.45	0.33	6.37	0.97	0.93	427.70
Mobile Source	1.06	1.79	11.63	1.01	0.23	1,204.55
Area + Mobile Source	2.51	2.12	18.00	1.98	1.16	1,632.25
Operational + Construction	3.91	4.46	20.19	4.81	1.86	1,924.52
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2011						
Construction Emissions	1.23	2.18	1.99	2.73	0.67	282.14
Operational Emissions						
Area Source	2.61	0.59	11.47	0.03	1.74	769.87
Mobile Source	1.91	3.23	20.93	1.81	0.42	2,168.20
Area + Mobile Source	4.52	3.82	32.40	1.84	2.16	2,938.07
Operational + Construction	5.75	6.0	34.39	4.57	2.83	3,220.21
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2012						
Construction Emissions	1.04	1.92	1.72	2.09	0.53	259.16
Operational Emissions						
Area Source	3.59	0.81	15.86	2.40	2.31	1,064.52
Mobile Source	2.64	4.47	28.94	2.51	0.58	2,998.00
Area + Mobile Source	6.23	5.28	44.8	4.91	2.89	4,062.52
Operational + Construction	7.27	7.2	46.52	7.0	3.42	4,321.68
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2013						
Operational Emissions						
Area Source	4.42	0.99	19.46	2.95	2.84	1,306.87
Mobile Source	3.25	5.48	35.53	3.08	0.72	3,680.58
Area + Mobile Source	7.67	6.47	54.99	6.03	3.56	4,987.45
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	

Table 4-7. Annual Total Emissions Mitigated (tons/year) for the Pillsbury Estates Project

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2009						
Construction Emissions	1.68	2.15	2.57	0.84	0.22	319.90
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2010						
Construction Emissions	1.30	1.97	2.19	0.67	0.18	292.27
Operational Emissions						
Area Source	1.45	0.33	6.37	0.97	0.93	427.70
Mobile Source	1.06	1.79	11.63	1.01	0.23	1,204.55
Area + Mobile Source	2.51	2.12	18.00	1.98	1.16	1,632.25
Operational + Construction	3.81	4.09	20.19	2.65	1.34	1,924.52
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2011						
Construction Emissions	1.15	1.83	1.99	0.64	0.17	282.14
Operational Emissions						
Area Source	2.61	0.59	11.47	0.03	1.74	769.87
Mobile Source	1.91	3.23	20.93	1.81	0.42	2,168.20
Area + Mobile Source	4.52	3.82	32.40	1.84	2.16	2,938.07
Operational + Construction	5.67	5.65	34.39	2.48	2.33	3,220.21
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2012						
Construction Emissions	0.97	1.58	1.72	2.01	0.45	259.16
Operational Emissions						
Area Source	3.59	0.81	15.86	2.40	2.31	1,064.52
Mobile Source	2.64	4.47	28.94	2.51	0.58	2,998.00
Area + Mobile Source	6.23	5.28	44.8	4.91	2.89	4,062.52
Operational + Construction	7.2	6.86	46.52	6.92	3.34	4,321.68
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2013						
Operational Emissions						
Area Source	4.42	0.99	19.46	2.95	2.84	1,306.87
Mobile Source	3.25	5.48	35.53	3.08	0.72	3,680.58
Area + Mobile Source	7.67	6.47	54.99	6.03	3.56	4,987.45
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	

Table 4-8. Annual Total Emissions Unmitigated (tons/year) for the Combined Project

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2009						
Construction Emissions	2.82	4.07	4.22	3.7	0.96	518.3
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2010						
Construction Emissions	4.22	4.99	5.54	8.64	2.03	711.96
Operational Emissions						
Area Source	2.37	0.54	10.28	1.56	1.5	703.58
Mobile Source	1.76	2.0	15.54	1.67	0.38	1,999.87
Area + Mobile Source	4.13	6.51	29.59	3.2	1.88	1,739.37
Operational + Construction	8.35	8.5	35.13	11.84	3.91	2,451.33
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2011						
Construction Emissions	3.54	4.51	4.78	7.63	1.8	656.56
Operational Emissions						
Area Source	6.2	1.4	26.6	2.31	3.93	1,836.59
Mobile Source	4.62	7.81	50.62	4.38	1.02	5,243.45
Area + Mobile Source	10.82	9.21	77.22	6.69	4.95	7,062.04
Operational + Construction	14.36	13.72	82.0	14.32	6.75	7,718.6
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	4.36	3.72			N/A	
2012						
Construction Emissions	2.95	4.09	4.11	6.28	1.5	105.11
Operational Emissions						
Area Source	9.33	2.12	40.05	6.04	5.82	2,770.35
Mobile Source	6.98	11.8	76.41	6.62	1.54	4,703.83
Area + Mobile Source	16.31	13.92	116.46	12.66	7.36	10,686.09
Operational + Construction	19.26	18.01	120.57	18.94	8.86	11,291.2
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	9.26	8.01			N/A	

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2013						
Construction Emissions	1.77	2.03	2.19	3.97	0.92	338.35
Operational Emissions						
Area Source	11.89	2.68	50.95	7.7	7.42	3,527.67
Mobile Source	8.9	15.02	97.33	8.43	1.97	10,082.93
Area + Mobile Source	20.79	17.7	148.28	16.13	9.36	13,610.6
Operational + Construction	22.56	19.73	150.47	18.04	10.28	13,948.95
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	12.56	9.73			N/A	
2014						
Operational Emissions						
Area Source	9.07	2.06	38.27	5.78	5.56	2,698.98
Mobile Source	6.87	11.59	75.11	6.50	1.52	7,780.90
Area + Mobile Source	15.94	13.65	113.38	12.28	7.08	10,479.88
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	5.94	3.65			N/A	

Table 4-9. Annual Total Emissions Mitigated (tons/year) for the Combined Project

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2009						
Construction Emissions	2.74	3.31	4.22	0.86	0.24	518.3
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2010						
Construction Emissions	4.12	4.21	5.54	2.02	0.51	711.96
Operational Emissions						
Area Source	2.37	0.54	10.28	1.56	1.5	280.15
Mobile Source	1.76	2.97	19.31	1.67	0.38	1,999.87
Area + Mobile Source	4.13	3.51	29.59	3.23	1.88	1,739.37
Operational + Construction	8.25	7.72	35.13	5.25	2.39	2,451.33
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	N/A	N/A			N/A	
2011						
Construction Emissions	3.27	3.81	4.78	1.78	0.45	656.56
Operational Emissions						
Area Source	6.2	1.4	26.6	2.31	3.93	1,836.59
Mobile Source	4.62	7.81	50.62	4.38	1.02	5,243.45
Area + Mobile Source	10.82	9.21	77.22	6.69	4.95	7,062.04
Operational + Construction	14.09	13.02	82.0	8.47	5.4	7,718.6
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	4.09	3.02			N/A	

	ROG	NO_X	CO	PM10	PM2.5	CO_2
2012						
Construction Emissions	2.73	3.42	4.11	2.99	0.7	605.11
Operational Emissions						
Area Source	9.33	2.12	40.05	6.04	5.82	2,770.35
Mobile Source	6.98	11.8	76.41	6.62	1.54	7,915.74
Area + Mobile Source	16.31	13.92	116.46	12.66	7.36	10,686.09
Operational + Construction	19.04	16.75	120.57	15.65	8.06	11,291.2
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	9.04	6.75			N/A	
2013						
Construction Emissions	1.77	2.03	2.19	3.97	0.92	338.35
Operational Emissions						
Area Source	11.89	2.68	50.95	7.7	7.42	3,527.67
Mobile Source	8.9	15.02	97.33	8.43	1.97	10,082.93
Area + Mobile Source	20.79	17.7	148.28	16.13	9.36	13,610.6
Operational + Construction	22.56	19.73	150.47	18.04	10.28	13,948.95
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	12.56	9.73			N/A	
2014						
Operational Emissions						
Area Source	9.07	2.06	38.27	5.78	5.56	2,698.98
Mobile Source	6.87	11.59	75.11	6.50	1.52	7,780.90
Area + Mobile Source	15.94	13.65	113.38	12.28	7.08	10,479.88
SJVAPCD Threshold	10.0	10.0			15.0	
Over Threshold	5.94	3.65			N/A	

Tables 4-4 through 4-9 indicate that construction emissions alone are not anticipated to exceed SJVAPCD ROG and NO_x thresholds of 10 tons per year. However, because the project would be built in phases, operational emissions would occur during construction. Therefore, it is appropriate to combine total yearly emissions from construction and operation and compare the combined total to SJVAPCD thresholds.

Tables 4-4 through 4-9 indicate that construction activities would trigger mitigation offsets through the requirements of SJVAPCD Rule 9510. The SJVAPCD ISR requires a 20% reduction in total NO_x emissions and a 45% reduction in total PM10 exhaust emissions from construction activities compared to the statewide fleet average. Compliance with the requirements of Rule 9510 would help minimize construction emissions, while implementation of mitigation measures AQ-1a through AQ-1c would reduce this impact but not to a less-than-significant level. As a result, even with the implementation of mitigation measures AQ-1a through AQ-1c, this impact would still be considered significant and unavoidable.

As previously indicated, the project applicant may enter into a development mitigation contract (also known as an air quality mitigation agreement) with SJVAPCD to reduce project emissions to a less-than-significant level (Barber pers. comm.). With this contract, the project applicant enters into a voluntary agreement with SJVAPCD to mitigate/reduce project emissions beyond the requirements of Rule 9510 through the payment of fees (on a per-ton basis) to SJVAPCD. If the fees are adequate to offset project-related emissions to a level below SJVAPCD thresholds, then the project emissions are considered less than significant (Barber pers. comm.). Consequently, the implementation of mitigation measure AQ-1d, in addition to mitigation measures AQ-1a through AQ-1c, would reduce project emissions to a less-than-significant level.

Operational Emissions

Long-term air quality impacts are associated with changes in the permanent use of the project site. For the proposed project, both area and mobile sources must be considered. Area sources include emissions from on-site activities and natural gas combustion for heating as well as emissions from the use of personal products. Mobile sources are associated with vehicle trips, including those of employees; deliveries; and maintenance activities.

For area sources, the URBEMIS 2007 model was used to predict emissions from natural gas usage and landscape maintenance. For mobile sources, emissions calculations are based on the daily trip generation data provided by URBEMIS 2007. Tables 4-4 through 4-9 summarize the results of these calculations for 2009 through 2014.

As indicated in Tables 4-4 through 4-9, the Evans Estates project (both unmitigated and mitigated) is expected to exceed SJVAPCD thresholds for ROG and NO_x in 2012, 2013, and 2014. Emissions associated with the combined project (both unmitigated and mitigated) are anticipated to exceed SJVAPCD operations thresholds for ROG and NO_x in 2011, 2012, 2013, and 2014.

Tables 4-4 through 4-9 also indicate that most operational emissions are a result of consumer products and vehicular emissions, both of which are difficult to mitigate. Consumer products are difficult to mitigate on a large scale because they come from many small area sources (i.e., sources such as hair sprays and deodorants), and the project applicant has little control (beyond features

incorporated into the project design) over vehicle activity, making it difficult to mitigate emissions from these sources.

SJVAPCD Rule 9510 requires development projects that meet certain criteria to implement control measures or purchase emission offsets to mitigate NO_x and PM10 emissions associated with project construction and operation. Rule 9510 requires a 33.3% reduction in a project's operational baseline NO_x emissions and a 50% reduction in of a project's operational baseline PM10 emissions over a period of 10 years. Compliance with Rule 9510 is separate from the CEQA process, although the control measures used to comply with Rule 9510 may be used to mitigate CEQA impacts.

The following control measures, which are recommended by SJVAPCD, would help to reduce ozone precursor concentrations within the air basin and satisfy a portion of the requirement for control measures to comply with Rule 9510. In addition, the implementation of mitigation measures AQ-1c and AQ-1e could reduce this impact but not to a less-than-significant level. As a result, even with the implementation of mitigation measures AQ-1c and AQ-1e, this impact would still be considered significant and unavoidable.

Table 4-9 indicates that total project NO_x emissions are almost double the SJVAPCD's threshold of 10 tons/year in the year 2013. Rule 9510 would require a maximum of 33.3% reduction in NOX emissions, which is insufficient to mitigate to below 10 tons per year. Consequently, additional mitigation, beyond the reduction requirements of Rule 9510, would be necessary to achieve this reduction. As previously indicated, the project applicant may enter into a development mitigation contract (also known as an air quality mitigation agreement) with SJVAPCD to reduce project emissions to a less-than-significant level (Barber pers. comm.). With this contract, the project applicant enters into a voluntary agreement with SJVAPCD to mitigate/reduce project emissions beyond the requirements of Rule 9510 through the payment of fees (on a per-ton basis) to SJVAPCD. If the fees are adequate to offset project-related emissions to a level below SJVAPCD thresholds, then the project emissions are considered less than significant (Barber pers. comm.). Consequently, the implementation of mitigation measure AQ-1d, in addition to mitigation measures AQ-1c and AQ-1e, would reduce project emissions to a less-than-significant level.

Mitigation Measure AQ-1a: Prepare and Implement a Dust Control Plan

To control the generation of construction-related PM10 emissions, the City of Manteca (City) will require construction contractors to prepare a dust control plan and submit it to SJVAPCD at least 48 hours before any earthmoving or construction activities. As previously indicated, implementation of a dust control plan would satisfy the requirements of Regulation VIII (Cadrett pers. comm.). The requirements of the dust control plan are described in Appendix D.

Mitigation Measure AQ-1b: Implement Measures to Reduce Construction Emissions

The City will require construction contractors to implement measures to reduce construction-related emissions. Such measures will include the following:

- Limit the area subject to excavation, grading, and other construction activity to one activity or phase at a time.
- Limit the hours of operation of heavy-duty equipment to a maximum of 8 hours per day 5 days per week, or limit the amount of equipment operated concurrently.
- Require that all diesel engines be shut off when not in use to reduce emissions from idling.
- Implement activity management (e.g., rescheduling activities to reduce short-term impacts) to minimize concurrent operation of construction equipment and concurrent construction of project phases.
- During the smog season (May through October), lengthen the construction period to minimize the number of vehicles and equipment operating at the same time. During periods of high ambient pollutant concentrations, such as "Spare the Air Days" declared by SJVAPCD, curtail or cease construction.
- Minimize the obstruction of traffic on adjacent roadways.
- Power construction equipment with diesel engines that are fueled by alternative diesel fuel blends or ultra-low-sulfur diesel (ULSD), or replace fossil-fueled construction equipment with electrically driven equivalents (provided they are not run via a portable generator). Only fuels that have been certified by ARB will be used. ARB has verified specific alternative diesel fuel blends for NO_x and particulate matter emissions reductions. The applicant will also use ARB-certified alternative-fueled (compressed natural gas [CNG], liquid propane gas [LPG], electric motors, or other ARB-certified off-road technologies) engines in construction equipment where practicable.
- Use construction equipment that meets the current off-road engine emissions standard (as certified by ARB) or is "repowered" with an engine that meets this standard. Tier I, Tier II, and Tier III engines have significantly less NO_x and PM emissions compared with uncontrolled engines. Off-road trucks will be equipped with on-road engines when possible.

Mitigation Measure AQ-1c: Implement Measures to Comply with SJVAPCD Rule 9510, Indirect Source Review

The project applicant will enter into a developer agreement with SJVAPCD and conduct an air impact assessment, as required by SJVAPCD Rule 9510. Required emissions control measures and off-site emissions reduction fees (if necessary) will be calculated by the project applicant through the permitting process, as dictated by Rule 9510, to

reduce construction-related NO_x emissions by 20% and PM10 emissions by 45% compared with the statewide fleet average.

Mitigation Measure AQ-1d: Enter into a Development Mitigation Contract

The project applicant will enter into a development mitigation contract with SJVAPCD to mitigate or reduce project emissions beyond the requirements of Rule 9510 through the payment of fees (on a per-ton basis) to SJVAPCD. The payment of fees will be made to SJVAPCD based on the fee schedule in the development mitigation contract and the amount of reduction necessary to offset project NO_x and ROG emissions below SJVAPCD thresholds.

Mitigation Measure AQ-1e: Incorporate Additional Innovative Measures to Reduce Air Quality Impacts

SJVAPCD will encourage innovation in measures to reduce air quality impacts. Several applicable measures will be incorporated into the design and operation of the proposed project to provide additional reductions in the overall level of emissions where feasible. These measures will include the following:

- Energy-efficient design will be provided for homes and buildings, including automated control systems for heating and air-conditioning and energy efficiency beyond Title 24 requirements, lighting controls and energy-efficient lighting in buildings, increased insulation beyond Title 24 requirements, and light-colored roof materials to reflect heat.
- Large canopy trees will be carefully selected and located to protect buildings from energy-consuming environmental conditions.
- If transit service is available to the project site, improvements shall be made to encourage its use. If transit service is not currently available but is planned for the area in the future, easements will be reserved to provide for future improvements. These include bus turnouts, loading areas, route signs, and shade structures. Appropriations made to facilitate public or mass transit will help mitigate trips generated by the project.
- Sidewalks and bicycle paths will be provided throughout as much of the project as possible and connect to any nearby open space areas, parks, schools, and commercial areas to encourage walking and bicycling. Connections to nearby public uses and commercial areas will be made as direct as possible to promote walking for some trips. Sidewalks and bikeways will be designed to separate pedestrian and bicycle pathways from vehicle paths. Sidewalks and bikeways will be designed to be accommodating and appropriately sized for anticipated future pedestrian and bicycle use. Such pathways will be easy to navigate and designed to facilitate pedestrian movement through the project and create a safe and inviting environment for all potential users (pedestrian, bicycle, and disabled) from obstacles and automobiles. Sidewalks will be designed for high visibility (brightly

painted, different colors for concrete, etc.) when crossing parking lots, streets, and similar vehicle paths.

- Exits to adjoining streets will be designed to reduce time to reenter traffic from the project site.
- Measures will be implemented to reduce the amount of vehicle traffic to and from the residential area(s) that further reduce air pollution in the SJVAB. This could include providing an information center for residents to coordinate carpooling.
- As many energy-conserving features as possible will be incorporated into the design and operation of the proposed project. These include:
  - increased energy efficiency;
  - increased wall and ceiling insulation (beyond building code requirements);
  - energy-efficient windows (double-paned or Low-E);
  - radiant heat barriers;
  - energy-efficient lighting, appliances, and heating and cooling systems;
  - solar water-heating systems;
  - low NO_x-emitting or high-efficiency, energy-efficient water heaters;
  - clean-energy features that promote energy self-sufficiency (e.g., photovoltaic cells, solar thermal electricity systems, small wind turbines);
  - geothermal heat pump systems;
  - programmable thermostats for all heating and cooling systems;
  - awnings or other shading mechanisms for windows;
  - porch, patio, and walkway overhangs;
  - ceiling fans or whole-house fans;
  - passive solar cooling and heating designs (e.g., natural convection, thermal flywheels);
  - daylighting (natural lighting) systems such as skylights, light shelves, and interior transom windows;
  - electrical outlets around the exterior of units to encourage the use of electric landscape maintenance equipment;
  - use of low- and no-VOC coatings and paints; and
  - natural gas fireplaces (instead of wood-burning fireplaces or heathers) and natural gas lines (if available to the project area) in backyard or patio areas to encourage the use of gas barbecues.

Impact AQ-2: Elevated Health Risk from the Exposure of Nearby Sensitive Receptors to Diesel Particulate Matter (Less than Significant)

Construction activities are anticipated to involve the operation of diesel-powered equipment for various activities. In October 2000, ARB identified diesel exhaust as a TAC. SJVAPCD does not consider cancer risks related to diesel exhaust or the use of construction equipment to be an issue because of the short-term nature of construction activities (Guerra pers. comm.). Cancer risks associated with exposures to diesel exhaust are typically associated with chronic exposure, which often assumes a 70-year exposure period. Although cancer can result from exposure periods of less than 70 years, acute exposure (i.e., exposure periods of 2 to 3 years) to diesel exhaust is, typically, not anticipated to result in an increased health risk because acute exposure, typically, does not result in the exposure concentrations necessary to result in a health risk. Health impacts associated with exposure to diesel exhaust from project construction are not anticipated to be significant because construction activities would occur in phases at different locations on the 240-acre site rather than being concentrated in any one location for a long period. Therefore, the project would not result in long-term emissions of diesel exhaust at any one location on the project site, and the impact would be less than significant. In addition, mitigation measure AQ-1b would further reduce emissions from project activities.

Impact AQ-3: Exposure of Sensitive Receptors to Substantial Concentrations of Carbon Monoxide (Less than Significant)

CO modeling following the Caltrans CO protocol (Garza et al. 1997) was conducted to evaluate whether the project would cause or contribute to localized violations of the state or federal ambient standards in the project vicinity. CO concentrations at sensitive receptors near congested roadways and intersections were estimated using CALINE4 dispersion modeling. Tables 4-10 and 4-11 summarize CO modeling results for existing year (2008) and cumulative year (2025) with-project and without-project conditions. No violations of the state or federal 1- or 8-hour CO standards are anticipated in the project area under design-year with-project conditions. Although roadway volumes would increase in future years, intersection congestion levels and volumes are not enough to result in elevated CO levels. In addition, it is anticipated that vehicle emissions in future years will be lower than existing years because of continuing improvements in engine technology and the retirement of older, higher emitting vehicles. Therefore, the impact of project traffic conditions on ambient CO levels in the project area is considered less than significant. No mitigation is required.

Table 4-10. Modeled Carbon Monoxide Levels Measured at Receptors in the Project Area for Existing (2008) Conditions

		Existing		Existing plus Evans Estates		Existing plus Pillsbury Estates		Existing plus Combined Project	
Intersection[1]	Receptor	1-hour CO[2]	8-hour CO[3]	1-hour CO[2]	8-hour CO[3]	1-hour CO[2]	8-hour CO[3]	1-hour CO[2]	8-hour CO[3]
Main St./ SR 120 EB	1	6.0	3.6	6.4	3.9	6.1	3.7	6.6	4.0
	2	6.0	3.6	6.3	3.8	6.1	3.7	6.4	3.9
	3	6.1	3.7	6.4	3.9	6.2	3.7	6.5	3.9
	4	6.4	3.9	6.8	4.1	6.5	3.9	6.9	4.2
N. Airport Way/ Atherton Dr.	5	6.4	3.9	6.3	3.8	6.5	3.9	6.6	4.0
	6	6.2	3.7	6.3	3.8	6.3	3.8	6.4	3.9
	7	6.2	3.7	6.6	4.0	6.2	3.7	6.3	3.8
	8	6.2	3.7	6.7	4.0	6.2	3.7	6.3	3.8
N. Airport Way/ SR 120 WB	9	6.1	3.7	6.2	3.7	6.2	3.7	6.2	3.7
	10	6.1	3.7	6.1	3.7	6.1	3.7	6.2	3.7
	11	6.3	3.8	6.4	3.9	6.3	3.8	6.4	3.9
	12	6.2	3.7	6.2	3.7	6.2	3.7	6.3	3.8
N. Airport Way/ SR 120 EB	13	5.9	3.6	5.9	3.6	5.9	3.6	5.9	3.6
	14	5.9	3.6	5.9	3.6	5.9	3.6	5.9	3.6
	15	5.9	3.6	6.0	3.6	6.0	3.6	6.0	3.6
	16	6.1	3.7	6.2	3.7	6.2	3.7	6.2	3.7
N. Airport Way/ Atherton Dr.	17	5.3	3.2	5.4	3.3	5.4	3.3	5.4	3.3
	18	5.3	3.2	5.4	3.3	5.4	3.3	5.4	3.3
	19	5.4	3.3	5.4	3.3	5.4	3.3	5.5	3.3
	20	5.4	3.3	5.4	3.3	5.4	3.3	5.5	3.3

Notes:

[1] Receptors 1 through 12 are located 35.4 feet from the center of each intersection diagonal, 25 feet from the roadway centerline, and 3 feet from the boundary of the mixing zone.

[2] Background concentrations of 4.1 ppm and 2.47 ppm were added to the modeling 1-hour and 8-hour results, respectively.

[3] The federal and state 1-hour standards are 35 and 20 ppm, respectively.

[4] The federal and state 8-hour standards are 9 ppm.

Table 4-11. Modeled Carbon Monoxide Levels Measured at Receptors in the Project Area for Cumulative (2025) Conditions

		Cumulative No Project		Cumulative plus Evans Estates		Cumulative plus Pillsbury Estates		Cumulative plus Combined Project	
Intersection[1]	Receptor	1-hour CO[2]	8-hour CO[3]	1-hour CO[2]	8-hour CO[3]	1-hour CO[2]	8-hour CO[3]	1-hour CO[2]	8-hour CO[3]
Main St./ SR 120 EB	1	5.3	3.2	5.4	3.3	5.3	3.2	5.3	3.2
	2	5.2	3.1	5.3	3.2	5.2	3.1	5.2	3.1
	3	5.2	3.1	5.2	3.1	5.2	3.1	5.2	3.1
	4	5.3	3.2	5.4	3.3	5.3	3.2	5.1	3.1
N. Airport Way/ Atherton Dr.	5	5.5	3.3	5.5	3.3	5.5	3.3	5.5	3.3
	6	5.4	3.3	5.5	3.3	5.4	3.3	5.5	3.3
	7	5.3	3.2	5.4	3.3	5.3	3.2	5.4	3.3
	8	5.3	3.2	5.4	3.3	5.3	3.2	5.4	3.3
N. Airport Way/ SR 120 WB	9	5.5	3.3	5.4	3.3	5.4	3.3	5.4	3.3
	10	5.6	3.4	5.5	3.3	5.5	3.3	5.5	3.3
	11	5.5	3.3	5.5	3.3	5.5	3.3	5.5	3.3
	12	5.4	3.3	5.5	3.3	5.4	3.3	5.5	3.3
N. Airport Way/ SR 120 EB	13	5.8	3.5	5.8	3.5	5.7	3.4	5.8	3.5
	14	5.7	3.4	5.7	3.4	5.7	3.4	5.7	3.4
	15	5.6	3.4	5.6	3.4	5.7	3.4	5.6	3.4
	16	5.6	3.4	5.6	3.4	5.8	3.5	5.6	3.4
N. Airport Way/ Atherton Dr.	17	5.6	3.4	5.6	3.4	5.6	3.4	5.6	3.4
	18	5.6	3.4	5.8	3.5	5.6	3.4	5.6	3.4
	19	5.7	3.4	5.9	3.6	5.7	3.4	5.8	3.5
	20	5.7	3.4	6.0	3.6	5.7	3.4	5.8	3.5

Notes:

[5] Receptors 1 through 12 are located 35.4 feet from the center of each intersection diagonal, 25 feet from the roadway centerline, and 3 feet from the boundary of the mixing zone.

[6] Background concentrations of 4.1 ppm and 2.47 ppm were added to the modeling 1-hour and 8-hour results, respectively.

[7] The federal and state 1-hour standards are 35 and 20 ppm, respectively.

[8] The federal and state 8-hour standards are 9 ppm.

Impact AQ-4: Increase in Greenhouse Gas Contaminant Emissions (Less than Significant)

Currently, EPA, ARB, and SJVAPCD have not established any thresholds or guidance to evaluate impacts associated with GHG emissions. This is because GHGs, especially CO^2, do not pose any health risks at ambient concentrations. The impacts associated with GHGs are long-term climatic changes, which are beyond the regulatory purview of the air district. As previously noted, GHG contaminant emissions tend to accumulate in the atmosphere because of their relatively long lifespan. As a result, their impact on the atmosphere is, for the most part, independent of the point of emission. However, automobiles are a major source of GHG emissions, and the quantity of GHG emissions from automobiles is directly correlated with the number of vehicle miles travelled (VMT). Because GHG emissions are more appropriately evaluated on a regional, state, or even national scale rather than an individual project level, project-specific GHG emissions are considered less than significant because climate change would not occur directly from project emissions.

Impact AQ-5: Contribution to a Cumulative Increase in Greenhouse Gas Contaminant Emissions (Significant and Unavoidable)

Currently, EPA, ARB, and SJVAPCD have not established any thresholds or guidance to evaluate impacts associated with GHG emissions. This is because GHGs, especially CO_2, do not pose any health risks at ambient concentrations. The impacts associated with GHGs are long-term climatic changes, which are beyond the regulatory purview of the air district.

As previously noted, GHGs tend to accumulate in the atmosphere because of their relatively long lifespan. As a result, their impact on the atmosphere is, for the most part, independent of the point of emission; GHG emissions are more appropriately evaluated on a regional, state, or even national scale rather than an individual project level. The IPCC has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

As indicated in Tables 4-8 and 4-9, the combined project operations would result in 10,479.88 tons per year of CO_2. Because it is accepted that climate change due to GHGs is occurring, and even small contributions may be cumulatively considerable given the seriousness of the problem, the project-related GHG emissions would result in a cumulatively significant contribution to climate change.

Chapter 5
Biological Resources

Introduction

This chapter describes the impacts of the proposed Evans Estates–Pillsbury Estates Project (proposed project) on biological resources on or adjacent to the project site. A discussion of federal, state, and local laws, policies, and regulations that influence biological resources is also presented in this chapter. Mitigation measures to avoid, minimize, and compensate for potential significant impacts on biological resources are described.

Environmental Setting

Study Area

The project site, located immediately south of the Manteca city limits in San Joaquin County, California, consists of approximately 240 acres bounded by South Manteca Road to the west, Pillsbury Road to the east, and existing residential subdivisions to the north (Figure 5-1). For the purposes of this chapter, the study area is defined as on or adjacent to the project site.

Methodology

ICF Jones & Stokes biologists reviewed existing information and conducted field surveys to identify biological resource issues in the study area. The following information was reviewed as part of the pre-field investigation:

- a California Natural Diversity Database (CNDDB) records search of the Manteca, Stockton West, Stockton East, Peters, Avena, Lathrop, Salida, Vernalis, and Ripon U.S. Geological Survey (USGS)7.5-minute quadrangles (California Natural Diversity Database 2008);
- California Native Plant Society (CNPS) 2008 online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2007);

- a U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for the Manteca USGS 7.5-minute quadrangle and San Joaquin County (U.S. Fish and Wildlife Service 2007);
- *City of Manteca General Plan 2023* (City of Manteca 2003);
- *San Joaquin County Multi-Species Habitat Conservation and Open Space Plan* (SJMSCP) (San Joaquin Council of Governments 2000);
- published and unpublished reports; and
- ICF Jones & Stokes file information.

This information was used to develop lists of special-status species and other sensitive biological resources that could be present in the study area.

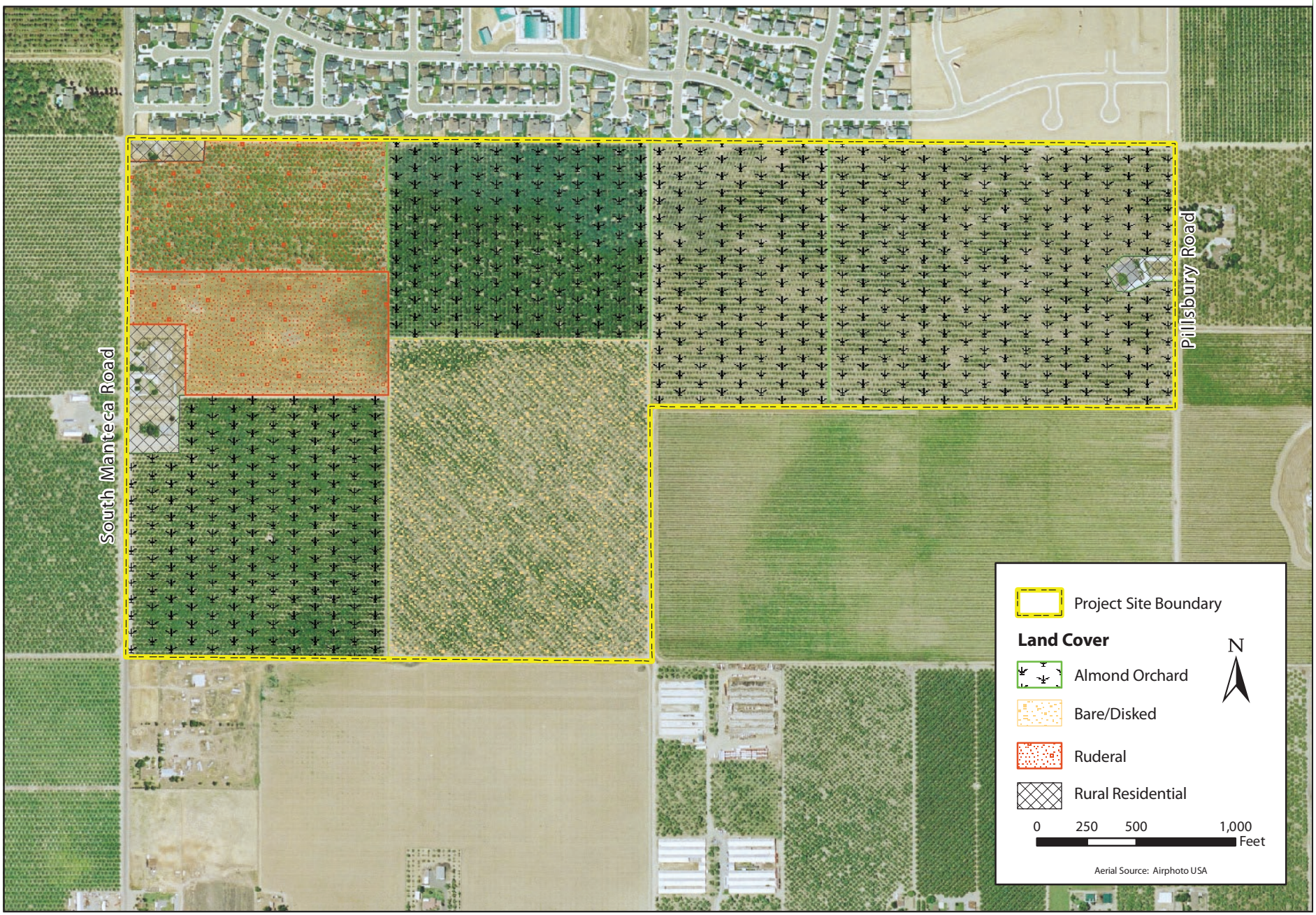
An ICF Jones & Stokes botanist/wetland ecologist and wildlife biologist conducted reconnaissance-level field surveys of the study area on August 31, 2005, and January 28, 2008. (Except where noted, all of the information in the setting section is from the 2008 survey.) The surveys were conducted by driving around the perimeter of the project site using agricultural access roads, and conducting a pedestrian survey of the entire project site. Adjacent lands were also visually surveyed from the project site and public access roads to look for elderberry shrubs, wetlands and other waters of the U.S., burrowing owls, burrowing owl habitat, and burrowing owl signs (e.g., pellets, whitewash, and feathers). The biologists stopped at regular intervals to document habitat types and species present, and to survey for signs of special-status wildlife. The field surveys were conducted to:

- characterize land cover types and their associated wildlife habitat uses;
- determine whether suitable habitat is present for special-status species that have the potential to occur in the study area; and
- identify potential waters of the U.S., including wetlands.

Lists of plant and animal species observed during the site visits are on file at ICF Jones & Stokes.

Regulatory Setting

A number of federal, state, and local agencies and jurisdictions are involved in the management of biological resources and the enforcement of these regulations. At the federal level these could potentially include the U.S. Environmental Protection Agency (EPA), U. S. Army Corp of Engineers (USACE), and USFWS. At the state level, governing agencies include the California Department of Fish and Game (CDFG) and the State Water Resources Control Board. Local entities whose plans guide the management of biological resources include the City of Manteca (City) and the San Joaquin Council of Governments (SJCOG). The project site is located within the Manteca city limits. The City is



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Figure 5-1
Land Cover Types on Project Site

a signatory to the *San Joaquin County Multi Species Habitat Conservation and Open Space Plan* (SJMSCP), and may, therefore, use it to obtain incidental take authorization for impacts on listed species while achieving mitigation and compensation requirements through the payment of fees used to preserve habitats elsewhere.

Federal

Endangered Species Act

The federal Endangered Species Act (FESA), of 1973, and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems on which they depend. USFWS (with jurisdiction over plants, wildlife, and resident fish) and the National Marine Fisheries Service (NOAA Fisheries) (with jurisdiction over anadromous fish, marine fish, and mammals) oversee the application of FESA.

Section 9 of FESA prohibits the *take* (defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect") of any threatened or endangered species. Harm may include significant habitat modification where it actually kills or injures a listed species through impairment of essential behavior (e.g., nesting or reproduction). Section 9 prohibitions apply to threatened species unless a special rule has been defined with regard to take at the time of listing.

Under Section 9 of FESA, the take prohibition applies only to wildlife and fish species. However, Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9.

Section 10 of FESA requires the issuance of an incidental take permit before any public or private (i.e., nonfederal) action may be taken that would potentially take any individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan, incidental to implementation of the project, which would offset the take of individuals that may occur by providing for the overall preservation of the affected species through specific mitigation measures. As noted above, the City may use the SJMSCP to obtain incidental take authorization for impacts on listed species and compliance with FESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects migratory bird species from take. *Take*, under the MBTA, is defined as "to pursue, hunt, shoot, wound, kill,

trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (*50 Code of Federal Regulations* [*CFR*] *10.12*). The definition differentiates between "intentional" take (take that is the purpose of the activity in question) and "unintentional" take (take that results from, but is not the purpose of, the activity in question).

Executive Order 13112: Prevention and Control of Invasive Species

Executive Order (EO) 13112, signed on February 3, 1999, directs all federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. It established a National Invasive Species Council composed of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The two entities prepared a national invasive species management plan (National Invasive Species Council and Invasive Species Advisory Committee 2001) that recommends objectives and measures to implement the EO and to prevent the introduction and spread of invasive species. The EO requires consideration of invasive species in National Environmental Policy Act analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally will have a significant environmental effect (in the context of biological resources) if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. The State CEQA Guidelines define *rare, threatened,* or *endangered species* as those listed under FESA and the California Endangered Species Act (CESA) as well as any other species that meets the criteria of the resource agencies or local agencies (e.g., CDFG-designated *species of special concern* and plant species identified by CNPS as being of conservation interest).

California Endangered Species Act

CESA prohibits the take of endangered and threatened species, but habitat destruction is not included in the state's definition of *take*. Section 2090 of CESA requires state agencies to comply with endangered species protection and

recovery and to promote conservation of these species. CDFG administers CESA and authorizes take through Section 2081 agreements (except for species designated as fully protected).

California Fish and Game Code

California Fully Protected Species

The California Fish and Game Code (CFGC) provides protection from take for a variety of species, referred to as *fully protected species.* Section 5050 lists fully protected amphibians and reptiles; Section 3515 lists fully protected fish; Section 3511 lists protected birds; and Section 4700 lists protected mammals. The CFGC defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited. One fully protected species, white-tailed kite (*Elanus leucurus*), has potential to forage in the study area.

California Fish and Game Code Sections 3503 and 3503.5

CFCF Section 3503 prohibits the killing of birds and/or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and/or the destruction of raptor nests.

California Native Plant Protection Act

Passed in 1977, the California Native Plant Protection Act (CNPPA) directs CDFG to "preserve, protect, and enhance rare and endangered plants" in California. The CNPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare. The "rare" designation has been discontinued since CESA was passed because plants are listed as endangered or threatened to parallel the federal designations under CESA. Plants designated as rare under the CNPPA were grandfathered in to receive protection under CESA.

Local

City of Manteca General Plan 2023

The Resource Conservation Element of the *City of Manteca General Plan 2023* contains the following policies and implementation measures related to biological resources (City of Manteca 2003).

Policies

RC-P-31. Minimize impact of new development on native vegetation and wildlife.

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.

RC-P-34. Protect special status species and other species that are sensitive to human activities.

RC-P-35. Allow contiguous habitat areas.

Implementation Measures

RC-I-32. Continue to support and comply with the requirements of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) when reviewing proposed public and private land use changes.

RC-I-33. Project proponents who opt not to participate in the SJMSCP shall:

- Satisfy applicable U.S. Endangered Species Act, California Endangered Species Act, National Environmental Policy Act, California Environmental Quality Act, and other applicable local, state, and federal laws and regulation provisions through consultations with the Permitting Agencies and local planning agencies.
- Provide site-specific research and ground surveys for proposed development projects. This research must include a detailed inventory of all biological resources onsite, and appropriate mitigation measures for avoiding or reducing impact on these biological resources. This requirement may be waived if determined by the City that the proposed project area is already sufficiently surveyed.
- **RC-I-37.** The City shall implement multiple use of resource areas, where feasible, that includes passive recreational and educational opportunities with the protection of wildlife and vegetation habitat areas.

San Joaquin County Multi-Species Habitat and Open Space Conservation Plan

The SJMSCP covers all of San Joaquin County. Permit holders under the SJMSCP include the County; the cities of Escalon, Lodi, Manteca, Stockton, Lathrop, Ripon, and Tracy; and SJCOG. The SJMSCP is designed to provide a regional approach to mitigating development impacts on the 97 listed and non-listed plant, fish, and wildlife species covered by the SJMSCP and compensating for the conversion of open space to non-open-space uses. The plan provides incidental take authorization through Section 10 of FESA (described above) for covered projects and provides compensation for habitat losses through collection of fees that are used to preserve habitats elsewhere.

The mitigation ratios and fees are determined on the basis of the type of lands that are being converted. Different SJMSCP development fees are charged for

various land cover types. Fees are adjusted annually pursuant to Section 7.5.2.2 of the SJMSCP (San Joaquin Council of Governments 2000).

Existing Conditions

The project site is located south of the Manteca city limits; it is in San Joaquin County within the San Joaquin Valley sub-region of the California Floristic Province (Hickman 1993). The topography of the project site is fairly level and ranges in elevation from approximately 35 to 45 feet above mean sea level.

Land Cover Types and Associated Wildlife Habitats

The land cover types on the project site include almond orchards, bare/disked land, disturbed ruderal areas, and rural residential development. Each of these land cover types is described below and their locations are shown in Figure 5-1.

Almond Orchard

Almond orchards comprise approximately two-thirds of the project site and are bounded by unpaved access roads (Figure 5-1). The understory of the almond orchard is extremely sparse and consists of ruderal species (e.g., common mallow [*Malva neglecta*], old-man-of spring [*Senecio vulgaris*], and mustard [*Brassica* sp.]). The almond orchards are actively farmed and undergo frequent disturbance including mowing between the rows, spraying weeds, and shaking the trees during harvest in the fall. Wildlife species observed in the almond orchards include western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), and mourning dove (*Zenaida macroura*).

Bare/Disked

The south-central portion of the project site consists of a bare/disked field that appears to have been disked relatively recently and contains only sparse patches of ruderal vegetation comparable to the understory of the almond orchard. At the time of the August 31, 2005, field survey, this portion of the project site was almond orchard. Wildlife species observed on bare/disked land at the project site include American kestrel (*Falco sparverius*), white-crowned sparrow (*Zonotrichia leucophrys*), brewer's blackbird (*Euphagus cyanocephalus*), western meadow lark (*Sturnella neglecta*), and mourning dove.

Ruderal

The northwestern portion of the project site is densely vegetated with ruderal species that colonize disturbed areas. Representative species observed were big heronbill (*Erodium botrys*), Russian thistle (*Salsola tragus*), turkey mullein (*Croton setigerus*), and ripgut brome (*Bromus diandrus*). Ruderal vegetation was also observed along the access roads. Birds observed in the bare/disked areas were also observed in the ruderal areas.

Rural Residential

The project site contains three single-family homes. Two of the homes are located on South Manteca Road along the western boundary of the project site and one is located on Pillsbury Road along the eastern boundary. A few large horticultural trees are growing around the residence on Pillsbury Road. Wildlife species expected to occur would be similar to those described above for bare/disked areas.

Special-Status Species

Special-status species are plants and animals that are legally protected under FESA, CESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For the purposes of this analysis, special-status species include:

- species listed or proposed for listing as threatened or endangered under FESA (50 CFR 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the *Federal Register* [FR] for proposed species);
- species that are candidates for possible future listing as threatened or endangered under FESA (72 FR 69034, December 6, 2007);
- species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (Title 14, *California Code of Regulations* [CCR], Section 670.5);
- plants listed as rare under CNPPA (CFGC, Section 1900 et seq.);
- plants considered by CNPS to be "rare, threatened, or endangered in California" (Lists 1B and 2, California Native Plant Society 2007);
- species that meet the definitions of rare or endangered under the State CEQA Guidelines, Section 15380;
- animals fully protected in California (CFGC, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]); and

- animal species of special concern to CDFG (California Department of Fish and Game 2007; Remsen 1978 [birds]; Williams 1986 [mammals]; and Jennings and Hayes 1994 [amphibians and reptiles]).

Tables 5-1 and 5-2 list the special-status plant and wildlife species that were identified during the pre-field investigation as having the potential to occur in the study area.

Special-Status Plants

The pre-field investigation identified 18 special-status plant species with potential to occur in the study area (California Native Plant Society 2007; California Natural Diversity Database 2008; U.S. Fish and Wildlife Service 2007). The legal status, distribution, habitat requirements, and blooming period of these special-status species are shown in Table 5-1. Based on the 2005 and 2008 field visits, the existing conditions in the study area do not meet the habitat requirements of any of the 18 species because no marshes, vernal pools, riparian areas, oak woodlands, alkaline soils, or annual grasslands are present. Therefore, the botanist determined that the 18 special-status plants were not present in the study area. The special-status plant occurrence nearest to the project site is Suisun Marsh aster (*Symphyotrichum lentum*), which occurs approximately 4 miles away (California Natural Diversity Database 2008). There is no suitable habitat for this species on the project site; consequently, it is not discussed further in this report. The proposed project would have no impact on any special-status plants; as such, impacts on special-status plants are not discussed further.

Special-Status Wildlife

The pre-field investigation identified 23 special-status wildlife species with potential to occur in the study area based on reported distribution within the project region (within 10 miles of the project site) (California Natural Diversity Database 2008; U.S. Fish and Wildlife Service 2007). The legal status, distribution, and habitat requirements of these special-status species are shown in Table 5-2. Based on the 2008 field visit, the study area contains suitable habitat for the following six of the 23 special-status species:

- northern harrier (*Circus cyaneus*)
- white-tailed kite (*Elanus leucurus*)
- Cooper's hawk (*Accipiter cooperii*)
- Swainson's hawk (*Buteo swainsoni*)
- western burrowing owl (*Athene canicularia hypugea*)
- tricolored blackbird (*Agelaius tricolor*)

Northern Harrier

Northern harrier is a ground-nesting bird found in open grasslands and marshes. The study area does not contain suitable nesting habitat for this species but may support foraging.

White-Tailed Kite and Cooper's Hawk

White-tailed kite and Cooper's hawk nest along riparian corridors or within wooded areas, habitats that do not occur in the study area. The study area does contain suitable foraging habitat for these species.

Swainson's Hawk and Other Migratory Birds and Raptors

Swainson's hawk and other non-special-status migratory birds and raptors could nest, roost, and forage in the study area. Nesting habitat is present in the large horticultural trees within residential areas along the eastern portion of the project site. Foraging habitat is present in the bare/disked and ruderal areas (Figure 5-1). A deteriorated wooden barn is located adjacent to the residence at the northwest corner of the project site; barns can provide suitable nesting and roosting habitat for migratory birds and raptors including barn owls and great-horned owls. In August 31, 2005, the landowner indicated that the barn was cleaned out and that no evidence of these species (i.e., owl pellets) was observed inside the barn. The barn was not surveyed in 2008. It is possible that either of these species is currently using the barn or that they could move into the barn prior to construction. No potential raptor nests were identified in any of the trees present on or adjacent to the project site. In addition to trees surrounding the residences, orchards attract foraging and roosting migratory birds such as western scrub-jay (*Aphelocoma californica*) and mourning dove. Orchard trees (almond) on the project site do not provide suitable nesting habitat for Swainson's hawk.

Burrowing Owl

Burrowing owl occurs in open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows or humanmade structures that provide similar habitat conditions. Ruderal areas along the margins of the bare/disked fields contain old irrigation pipes that could be used for nesting by burrowing owls. The bare/disked fields and ruderal habitat on the project site provide suitable foraging for burrowing owls. Numerous nesting records for burrowing owl occur within 10 miles of the project site, with the closest record occurring within approximately 4 miles.

Tricolored Blackbirds

Tricolored blackbirds nest in large colonies (50 or more pairs) in dense tules and in cattails, blackberries, nettles, thistles, and grainfields. The study area does not contain suitable nesting habitat for this species; however, numerous nesting records for tricolored blackbird occur within 10 miles of the project site, with the closest record occurring within approximately 2 miles. The study area contains suitable foraging habitat for this specieis: the bare/disked fields and ruderal areas.

Roosting Bats

Numerous common bat species, including big brown bat (*Eptesicus fuscus*), Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*), are known to use old barns or other dilapidated outbuildings for a variety of day and night roosts. As noted above, a deteriorated wooden barn is located within the study area, adjacent to the residence at the northwest corner of the project site. Barns can provide suitable roosting habitat for bats. A discussion with the landowner, on August 31, 2005, revealed that the barn was cleaned out, and that no evidence of roosting bats (i.e., bat guano) was observed inside the barn. The barn was not surveyed in 2008. It is possible that bats are currently present or that they could move into the barn prior to construction.

Invasive Species

The study area contains small, scattered occurrences of plant species that are considered invasive, such as yellow star thistle (*Centaurea solstitialis*), Russian thistle, ripgut brome, and bermudagrass (*Cynodon dactylon*).

Impact Analysis

Approach and Methodology

This biological resource analysis is based on information collected during 2005 and 2008 site visits and on data sources and information listed under "Environmental Setting," above. Mitigation measures are consistent with those required under the SJMSCP and comply with standard mitigation measures required by the resource agencies.

Significance Criteria

Thresholds presented in CEQA Guidelines Appendix G (14 CCR 15000 et seq.) were used to determine whether the proposed project would have a significant impact related to biological resources. Based on these guidelines, the proposed project would cause a significant impact if it would:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by CDFG or USFWS;
- have a substantial adverse effect on federally protected wetlands, as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, and

coastal wetlands), through direct removal, filling, hydrological interruption, or other means;

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted habitat conservation plan (HCP); such as the SJMSCP, natural communities conservation plan; or other approved local, regional, or state habitat conservation plan.

The initial study prepared for the proposed project found that the proposed project would have no impact on wetlands and migratory fish or wildlife species; therefore, these issues are not further addressed in this report.

Assumptions and Impact Mechanisms

The proposed project includes annexation of the project site to the City of Manteca. As a signatory to the SJMSCP, the City may use the SJMSCP to obtain incidental take authorization for impacts on listed species while achieving mitigation and compensation requirements through the payment of fees used to preserve habitats elsewhere. Current fee requirements are specified under "Regulatory Setting," above. The SJMSCP also contains recommended mitigation for the protection of non-listed, special-status species and sensitive or native communities. The mitigation measures included in this chapter are consistent with those identified for SJMSCP participants and are also consistent with current agency requirements.

This impact analysis assumes that project construction would result in permanent direct impacts on biological resources located on the project site and short-term or long-term indirect impacts on biological resources located adjacent to the project site. In assessing the magnitude of potential impacts, the following assumptions were made regarding the proposed project and potential impacts on biological resources.

- The study area could support special-status species for which there is suitable habitat and for which focused surveys have not been conducted.
- All vegetative and non-vegetative (e.g., irrigation piping) wildlife habitat would be removed in areas proposed for development. Wildlife in these areas would be displaced or destroyed during construction.
- Removal of sensitive biological communities could cause a substantial localized decrease in those communities.

- The removal of nonnative annual grassland and agricultural lands, common and widespread habitat types in study area, would not result in impacts on sensitive botanical resources but could have impacts on wildlife habitat.

The following types of project activities could result in adverse impacts on biological resources. These types of activities were considered in the assessment of project-related impacts on biological resources:

- grading, clearing, and tree removal;
- trenching;
- short-term, construction-related noise (from equipment);
- temporary stockpiling of soil or construction materials, and sidecasting of soil and other construction wastes;
- soil compaction and generation of dust by construction equipment; and
- water runoff from the construction area.

Impacts and Mitigation Measures

Impact BIO-1: Potential Introduction or Spread of Invasive Species (Less than Significant with Mitigation)

Several invasive plant species were observed in the study area (i.e., yellow star thistle, Russian thistle, ripgut brome, and bermudagrass), but are limited to small, scattered occurrences that do not constitute an infestation. Project construction activities could introduce or spread noxious weeds into currently uninfested areas. Plants or seeds may be dispersed via construction equipment, if the appropriate measures are not implemented. This potential impact is considered significant because the introduction or spread of noxious weeds could result in a substantial reduction or elimination of species diversity or abundance. Implementation of Mitigation Measure BIO-1 would reduce this potential impact to a less-than-significant level.

Mitigation Measure BIO-1: Avoid the Dispersal of Noxious Weeds into Uninfested Areas

To avoid the introduction or spread of noxious weeds into uninfested areas, the following measures will be incorporated into project construction plans and specifications:

- Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas).
- Educate construction supervisors and managers about weed identification and the importance of controlling and preventing the spread of noxious weeds.

- Include the noxious weed avoidance measures in contract documents and ensure that they are implemented by the program contractor.

Impact BIO-2: Impacts on Nesting Swainson's Hawk and Non-Special-Status Migratory Birds (Less than Significant with Mitigation)

Development of the project site could affect, either directly or through habitat modifications, Swainson's hawk (listed as threatened under CESA [Table 5-2]) and non-special-status migratory birds and raptors. Tree removal, building demolition, grading, or other construction activities conducted during the nesting season (generally March 1 through August 15) could remove or cause abandonment of active nests of Swainson's hawk and other migratory birds and raptors, if they are found nesting on or adjacent to the project site. Suitable bird and raptor nesting habitat (trees and a barn) was identified on the project site. Impacts on a state-listed species (Swainson's hawk) and species protected under the MBTA and CFGC are considered potentially significant. Implementation of Mitigation Measure BIO-2, which is consistent with the SJMSCP, would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-2: Conduct Tree Removal and Barn Demolition Activities during Nonbreeding Season for Swainson's Hawk and Non-Special-Status Migratory Birds and Raptors, or Conduct Nesting Bird Survey Prior to Tree and Barn Removal Activities

To avoid removing any active Swainson's hawk or non-special-status migratory bird and raptor nests protected under the MBTA and the CFGC, tree removal and barn demolition activities will be conducted during the nonbreeding season for these species (generally August 16 through February 28) or after a qualified biologist determines that fledglings have left the nest, as described in the SJMSCP (Sections 5.2.3.1[G], 5.2.4.11, 5.2.4.18, and 5.2.4.19). If tree removal or barn demolition activities will be conducted before August 16 or after February 28, a qualified biologist will be retained to survey for nesting birds in all trees and the barn that will be removed and any tree (or barn) located within 500 feet (or 0.25 mile for Swainson's hawk) of construction activities, including grading. The nesting bird survey will be conducted no more than 48 hours before tree removal or barn demolition activities. If the biologist determines that the area surveyed does not contain any active nests, tree removal and barn demolition activities can commence without any further mitigation. If active nests are found, the activities will not occur until nesting activities have ceased (after a qualified biologist determines that fledglings have left the nest).

Impact BIO-3: Loss of Swainson's Hawk Foraging Habitat (Less than Significant with Mitigation)

The proposed project would result in the conversion of approximately 233 acres of agricultural habitat lands (orchard, bare/disked, and ruderal areas) to residential development. These lands provide suitable foraging habitat for Swainson's hawk. Records cite numerous active Swainson's hawk nests within 10 miles of the project site, the closest occurring approximately 3 miles from the project site. Because the availability of foraging habitat has been closely tied to the breeding success of this species, projects that will adversely modify suitable Swainson's hawk foraging habitat within a 10-mile radius of active Swainson's hawk nests are considered to adversely affect this species (California Department of Fish and Game 1994). Therefore, the loss of suitable foraging habitat in the study area would be considered a potentially significant impact. Implementation of Mitigation Measure BIO-3 would fully mitigate for potential adverse impacts on Swainson's hawk foraging habitat and would reduce this potential impact to a less-than-significant level.

Mitigation Measure BIO-3: Compensate for Loss of Foraging Habitat for Swainson's Hawk and Burrowing Owl as Outlined in the SJMSCP

The project proponent will provide compensation for the conversion of approximately 233 acres of agricultural habitat lands (i.e., fund acquisition of preserve lands) at a ratio of 1:1 (acres acquired to acres lost), as outlined in the SJMSCP (Section 4.1.2[A]). Compensation for agricultural habitat lands will be determined based on mitigation fees adopted by the SJCOG Board; these fees are adjusted annually pursuant to the SJMSCP (San Joaquin Council of Governments 2000). The final cost to fulfill project compensation requirements will be determined during coordination with SJCOG. Compensation fees must be paid at the time of building permit issuance for each single-family dwelling.

Impact BIO-4: Loss of Potential Foraging Habitat for Other Special-Status Birds (Less than Significant with Mitigation)

The project site contains potential foraging habitat for other special-status birds, including northern harrier, white-tailed kite, Cooper's hawk, and tricolored blackbird. Implementation of Mitigation Measure BIO-3 will mitigate for the loss of potential foraging habitat for these species, reducing this impact to a less-than-significant level.

Impact BIO-5: Impacts on Western Burrowing Owl (Less than Significant with Mitigation)

Development of the project site could affect, either directly or through habitat modifications, the burrowing owl, a CDFG species of special concern. Grading or other construction activities during the nesting season (February 1 through August 31) could destroy or cause abandonment of active nests on or adjacent to the project site. Although no burrowing owl sign (e.g., burrows, white wash, feathers, or pellets) was observed in the study area, this species could move onto the project site prior to construction of the proposed project. Impacts on this species are considered potentially significant. Because suitable onsite burrowing owl habitat consists of mostly agricultural lands, compensation for the conversion of approximately 233 acres of agricultural habitat lands to offset impacts on Swainson's hawk foraging habitat under the SJMSCP would also offset impacts on burrowing owl habitat. Implementation of Mitigation Measure BIO-3 and Mitigation Measures BIO-5a and BIO-5b would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-5a: Conduct Preconstruction Survey and Adhere to CDFG Guidelines

CDFG (1995) recommends that preconstruction surveys be conducted to locate active burrowing owl burrows in the construction work area and within a 250-foot-wide buffer zone around the construction area. The project proponent or its contractor will retain a qualified biologist to conduct preconstruction surveys for active burrows according to CDFG's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995). The preconstruction surveys will include a breeding season survey and wintering season survey. If no active burrows are detected, no further mitigation is required.

Mitigation Measure BIO-5b: Avoid and Minimize Impacts on Nesting Burrowing Owl

If active burrowing owl burrows are detected, the project proponent will implement the following measures.

- Active burrows will not be disturbed during the breeding season (February 1–August 31).
- If active burrows must be disturbed during the nonbreeding season, passive relocation techniques (e.g., installing one-way doors at burrow entrances) will be used instead of trapping, as described in CDFG guidelines. At least 1 week will be necessary to complete passive relocation and allow owls to acclimate to alternate burrows.

Impact BIO-6: Impacts on Roosting Bats (Less than Significant with Mitigation)

Development of the project site could affect, either directly or through habitat modification, bat roosts, which are considered a sensitive resource by CDFG. Suitable habitat for roosting bats is present in the barn located on the project site. Removal of the barn could destroy or cause failure of active roosts. Although no bats or bat sign (i.e., insect parts, guano, or urine stains) were observed in the barn in 2005, bats could currently occupy the barn or move into the barn prior to project construction. Impacts on this species are considered potentially significant. Implementation of Mitigation Measures BIO-6 would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-6: Conduct Preconstruction Survey and Remove Barn during Non-breeding Season

To avoid destruction of active roosts, the project proponent will conduct a preconstruction survey of the barn to determine whether it is being used for roosting by bats. If no bats or bat sign are observed, all barn crevices or openings will be sealed to prevent bats from moving into barn structure. If roosts or evidence of roosting bats are identified, the project proponents will follow the impact avoidance measures described in the SJMSCP (Section 5.2.4281[A-C]), and excerpted below.

- Prior to the nursery season (generally April through August) nursery sites shall be sealed.
- Seal hibernation sites, prior to the hibernation season (November through March) when hibernation sites are identified on the project site. Alternatively grating may be installed as described in 5.5.9(E)(1) of the SJMSCP.
- When colonial roosting sites, which are located in trees or structures must be removed, removal shall occur outside of the nursery and/or hibernation season, and shall occur during dusk and/or evening hours after bats have left the roosting site unless otherwise approved pursuant to Section 5.2.3.2 of the SJMSCP.

Chapter 6
Cultural Resources

Introduction

This chapter describes the impacts of the Evans Estates–Pillsbury Estates Project (proposed project) on cultural resources on the project site.

The term *cultural resources* is used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.

The following key sources of data and information were used in the preparation of this section.

- field surveys
- a detailed records search
- input from Native American tribes and historical organizations
- a review of historical literature and previous reports
- additional primary research

A detailed cultural resources analysis supporting the findings in this section can be found in the cultural resources technical report, included as Appendix E to this document.

Environmental Setting

This section discusses the federal, state, and local regulations related to cultural resources that would apply to the proposed project. It then describes existing conditions related to cultural resources in the project area.

Regulatory Setting

State

California Environmental Quality Act and Cultural Resources

Section 15064.5 of the California Environmental Quality Act (CEQA) Guidelines requires that proponents of public and private projects financed or approved by public agencies assess the effects of the project on significant historical resources and unique archaeological resources (as defined in Section 21083.2). *Historical resource* is a CEQA term that includes buildings, sites, structures, objects, or districts that may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance and are eligible for listing or are listed on the California Register of Historical Resources (CRHR). According to Section 15064.5(a), a resource can qualify as a significant historical resource for the purposes of CEQA review if it meets any of the following criteria:

- It is listed in or determined eligible for listing in the CRHR.
- It is included in a local register of historical resources, as defined in PRC 5020.1(k), or identified as significant in a historical resource survey that meets the requirements of PRC 5024.1[g] unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- The lead agency determines it is significant as supported by substantial evidence in light of the whole record.

CEQA requires lead agencies to use specific criteria in evaluating the significance of historical resources potentially affected by a proposed project. The criteria required under CEQA are the same as the CRHR significance criteria discussed in the following section.

California Register of Historical Resources

The CRHR was created by the California State legislature in 1992 and is intended to serve as an authoritative listing of historical and archaeological resources in California. Additionally, the eligibility criteria for the CRHR are intended to serve as the definitive criteria for assessing the significance of historical resources for purposes of CEQA compliance, establishing a consistent set of criteria for use by all public agencies statewide.

For a historical resource to be eligible for listing in the CRHR, it must be significant at the local, state, or national level under one or more of the following criteria from CEQA Guidelines Section 15064.5(a)(3)(A–D).

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in our past.

- It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of an important creative individual or possesses high artistic values.
- It has yielded, or may be likely to yield, information important in prehistory or history.

Historical resources automatically listed in the CRHR include those historic properties listed in, or formally determined to be eligible for listing in, the National Register of Historic Places (NRHP) (PRC 5024.1).

Local

San Joaquin County General Plan 2010

The *San Joaquin County General Plan 2010* (County General Plan) includes a Heritage Resources Element designed to assist the County in its objective to "protect San Joaquin County's valuable architectural, historical, archaeological, and cultural resources." The following policies are noted in the County General Plan (San Joaquin County 2005).

1. The County shall continue to encourage efforts, both public and private, to preserve its historical and cultural heritage.
2. Significant archaeological and historical resources shall be identified and protected from destruction. If evidence of such resources appears after development begins, an assessment shall be made of the appropriate actions to preserve or remove the resources.
3. No significant architectural, historical, archaeological or cultural resources shall be knowingly destroyed through County action.
4. Reuse of architecturally interesting or historical buildings shall be encouraged.
5. The County shall promote public awareness of and support for historic preservation.

The County General Plan states that these policies will be implemented in the following ways:

1. Heritage Information Program: The County shall establish an educational program to be administered through the County Museum to acquaint the County's population with its landmark programs and preservation issues.
2. Promotion of Historic Preservation
    a. The County shall continue to support and fund historical preservation efforts, such as the County Museum complex at Micke Grove, Harmony Grove Church, and Haggin Museum.
    b. A Historic Preservation Commission shall be established to promote heritage preservation programs.
3. Historic Resource Inventory: The County shall inventory heritage resources in the unincorporated area and shall encourage inventories in the cities.

4. Historic Preservation Regulation: The County Development Title shall include archaeological and historic preservation regulations that will specify procedures to be followed in the event that significant resources are discovered during the development process.
5. Registration of Historic Properties: Owners of eligible historic properties shall be encouraged to apply for State and federal registration and to participate in tax incentive programs for historic restoration (San Joaquin General Plan 2010, vol. 1, Countywide General Plan, adopted by the San Joaquin County Board of Supervisors on July 29, 1992, VI-37, 38).

City of Manteca General Plan 2023

The *City of Manteca General Plan 2023* (City General Plan) contains a cultural resources element that outlines policies in support of the City's goals to preserve and enhance Manteca's archeological and historic resources for their aesthetic, educational and cultural values as well as protect Manteca's Native American heritage (City of Manteca 2003). The City's policies for the preservation of cultural resources generally follow CEQA guidelines, including conducting a records search through the California Historical Resources Information System as well as requiring an inventory and evaluation of cultural resources prior to approving public or private projects. The City also has a policy to prepare and adopt a Historical Preservation ordinance and work with the redevelopment agency to support efforts of property owners to preserve historic and architecturally significant buildings.

Existing Conditions

The project site is located in San Joaquin County, situated directly south of the Manteca city limits. Specifically, the project site is located south of modern residential developments including Mission Garden, Emerald Glen, and Woodward Park, between South Manteca Road and Pillsbury Road. The project site includes agricultural and residential development. Most of the project site is currently used for agriculture (almond orchards) or is landscaped or paved.

Prehistoric Setting

The prehistory of the Sacramento–San Joaquin Valley has been described in terms of archaeological patterns. A pattern is a general mode of life characterized archaeologically by technology, particular artifacts, economic systems, trade, burial practices, and other aspects of culture. Although the Sacramento–San Joaquin Valley may have been inhabited by humans as early as 10,000 years ago, little reliable evidence indicates widespread occupation until about 4,000 years ago. This early culture has been called the Windmiller Pattern. The Windmiller Pattern may be linked with the arrival of peoples from outside of California and is characterized by distinctive burial practices, use of baked clay artifacts, possibly a heavier reliance on hunting rather than gathering of plant foods, certain forms of shell ornaments, and use of basketry (Moratto 1984).

The Windmiller Pattern appears to have been replaced by the Berkeley Pattern by around 500 BC. The Berkeley Pattern may be associated with the movement of Miwok groups into the Central Valley from coastal areas. Archaeologically, the Berkeley Pattern is characterized by relatively more pestles and mortars than are found in Windmiller sites, a well-developed bone artifact technology, distinctive flaked-stone technology, specific shell ornament types, and distinctive burial practices (Moratto 1984).

The Augustine Pattern replaced the Berkeley Pattern in the Sacramento Valley in approximately AD 600 and lasted until the historic period. This pattern appears to mark the arrival of ethnographically documented peoples. It is thought that the Augustine Pattern is associated with a movement of Wintuan peoples from the north into the Sacramento Valley. This pattern is distinguished by the use of the bow and arrow, shaped mortars and pestles, intensive trade, large populations, social stratification, and distinctive burial practices (Moratto 1984).

Ethnographic Setting

The project area was aboriginally inhabited by the Northern Valley Yokuts. Ethnographic work with this group is lacking in comparison to other groups within California. Because of the early decimation of the aboriginal populations in the lower San Joaquin Valley, most information regarding this group is gleaned from accounts of Spanish military men and missionaries. A summary of these sources has been compiled by W. J. Wallace (1978), and it is upon that work that this brief ethnographic setting is based.

Northern Valley Yokuts territory is defined roughly by the crest of the Diablo Range on the west and the foothills of the Sierra Nevada on the east. The southern boundary is approximately where the San Joaquin River bends northward, and the northern boundary is roughly halfway between the Calaveras and Mokelumne rivers. The Yokuts may have been fairly recent arrivals in the San Joaquin Valley, perhaps being pushed out of the foothills about 500 years ago.

Population estimates for the Northern Valley Yokuts vary from 11,000 to more than 31,000 individuals. Populations were concentrated along waterways and on the more hospitable east side of the San Joaquin River. Villages, or clusters of villages, made up tribelets (miniature tribes) led by headmen. The number of tribelets is estimated at 30 to 40; each tribe spoke its own dialect of the Yokuts language. Combined with the Southern Valley Yokuts and the Foothill Yokuts dialects, these tongues formed the Yokutsan linguistic family of the Penutian Stock (Shipley 1978).

Principal settlements were located on the tops of low mounds, on or near the banks of the larger watercourses. Settlements were composed of single-family dwellings, sweathouses, and ceremonial assembly chambers. Dwellings were small and lightly constructed, semisubterranean and oval. The public structures were large and earth covered. Sedentism was fostered by the abundance of riverine resources in the area.

Subsistence among the Northern Valley Yokuts revolved around the waterways and marshes of the lower San Joaquin Valley. Fishing with dragnets, harpoons, and hook and line yielded salmon, white sturgeon, river perch, and other species of edible fish. Waterfowl and small game attracted to the water also provided a source of protein. The contribution of big game to the diet was probably minimal. Vegetal staples included acorns, tule roots, and seeds.

Goods not available locally were obtained through trade. Paiute and Shoshone groups on the eastern side of the Sierra were suppliers of obsidian. Shell beads and mussels were obtained from Salinan and Coastanoan groups. Trading relations with Miwok groups yielded baskets and bows and arrows. Overland transport was facilitated by a network of trails, and tule rafts were used for water transport.

Most Northern Valley Yokuts groups had their first contact with Europeans in the early 1800s when the Spanish began exploring the Sacramento River–San Joaquin River Delta. The gradual erosion of Yokuts culture began during the mission period. Escaped neophytes brought foreign (European and Native American) habits and tastes and Spanish expeditions to recover escapees. Epidemics of European diseases played a large role in the decimation of the native population. With the secularization of the mission and the release of neophytes, tribal and territorial adjustments were set in motion. People returned to other groups, and a number of polyglot "tribes" were formed. The final blow to the aboriginal population came with the gold rush and its aftermath. In the rush to the southern mines, native populations were pushed out of the way and out of their territories. Former miners settling in the fertile valley applied further pressure on the native groups and altered the landforms and waterways of the valley. Many Yokuts resorted to wage labor on farms and ranches. Others were settled on land set aside for them on the Fresno and Tule river reserves (Wallace 1978).

Historic Setting

Early History: Exploration and Settlement

The project site is located in San Joaquin County, just south of Manteca. Established with statehood in 1850, San Joaquin County was one of California's original 27 counties. The county takes its name from the San Joaquin River, which was named by Gabriel Moraga for Saint Joachim in 1813. Stockton, which lies north of Manteca but is centrally located within the county, has been the county seat since its inception (Hoover et al. 1990).

Although a number of Spanish and Mexican explorers ventured into the Delta region during the late 1700s and early 1800s in search of potential mission sites, the first Euro-American to traverse the Manteca area specifically was likely Jedediah Strong Smith, who opened the Sacramento Trail in the late 1820s. Smith reported the quantity and quality of furs available in California to the Hudson's Bay Company and, in 1828, the company sent its first trapping

expedition into the region. Trappers working for Hudson's Bay Company established the settlement of French Camp (1832 to 1845) south of the modern location of Stockton and Manteca (Hoover et al. 1990; Thompson 1980; Thompson and West 1968).

The American annexation of California, the discovery of gold in 1848, the resulting Gold Rush, and California statehood in 1850 all contributed to a change in the area that would come to be known as Manteca in the mid- and late-nineteenth century. During the Gold Rush, many argonauts turned their attention to the verdant soil of the Central Valley, as agricultural endeavors often provided a more stable income than mining for gold. The rich farmlands of the Central Valley, including Manteca, assured the continued growth of the region during the post–Gold Rush era (Thompson 1980; Stockton Savings and Loan Association n.d.).

Agricultural Development

What is now Manteca was once a small farming community populated by a few families whose homes sat on large tracts of land scattered throughout the area. One prominent early settler, Joshua Cowell, considered the "Father of Manteca," farmed much of the land currently occupied by downtown Manteca, while another settler, John McMullin (longtime landowner of the project site), a veteran of the Mexican-American War, ran a lucrative cattle ranching operation south of the city. These early settlers were typical of the area from the 1850s through the 1860s. Although cattle ranching was popular in the region for a short time, a drought in the early 1860s caused many ranchers to turn to farming. These early farmers initially grew wheat and barley, but later, after the introduction of irrigation in 1885, switched to almonds, alfalfa, melons, and grapes. Dairy farming also became prominent after the introduction of irrigation. As a result, by the turn of the twentieth century, grain was no longer the staple crop of the region (Thompson 1980; Thompson and West 1968; Stockton Savings and Loan Association n.d.).

City of Manteca

Manteca proper began as flag stop on the Southern Pacific Railroad (SPRR). In 1869, the Central Pacific Railroad (CPRR) established a line that passed through the region. The SPRR, successor to the CPRR, continued to operate in the area until the twentieth century. Known as Cowell's Station, the flag stop was originally a discarded boxcar located near the junction of the railroad line and Yosemite Avenue. Around 1896, local dairymen and farmers established a cooperative skimming station for raw milk at the stop. With the establishment of the creamery during this period, the railroad renamed Cowell's Station "Monteca," an adaptation of the Spanish word for butter, mantequilla. However, the railroad misprinted the name as "Manteca," Spanish for lard, on the first tickets produced for the stop. Thus, it was by accident that Manteca received its name (Thompson 1980).

By the early 1900s, Manteca began to grow and locals established amenities, including a telephone exchange, post office, a bank, and electricity. City officials set up a board of trade in 1909, and Joshua Cowell, a longtime booster of local irrigation, pushed for the establishment of the South San Joaquin Irrigation

District. By 1914, local businessmen Achille Baccilieri, T. A. Nelson, F. M. Cowell, and Louis Vistica recognized that the agricultural products produced in the Manteca region could support the creation of a local cannery; consequently, they opened the Manteca Canning Company. In 1916, the board of trade succeeded in bringing a Spreckels sugar refinery to the town, which opened in 1918. On May 28, 1916, the City of Manteca was formally incorporated. Within two decades, Manteca had grown from a small railroad stop to a full-fledged city, with public services and manufacturing facilities (Thompson 1980).

In the early 1920s, insect-infested crops along with a significant drop in sugar prices caused the Spreckels sugar refinery to close. Manteca was no exception to the economic downturn of the Great Depression of the 1930s, felt in communities nationwide. In a joint effort to revive Manteca's local economy, the U.S. Department of Agriculture and Spreckels produced a more disease-resistant sugar-beet seed, and the local refinery reopened in 1931. The restart of the Spreckels sugar refinery along with the opening of the Kraft Foods cheese factory served to boost the local economy during the mid-1930s and into the early 1940s. During World War II, the Spreckels sugar refinery closed once again, and the company's machine shop was used by the U.S. Navy to store supplies. The sugar production facility reopened in 1946 and remained a profitable enterprise throughout the twentieth century (Hillman and Covello 1985).

Manteca, along with the nation as a whole, enjoyed a period of prosperity following the end of World War II. During the 1950s, commuters moved to the city because of its proximity to Tracy, Modesto, and Stockton. At the end of the 1960s, the influx of people brought more prosperity to the town as the downtown commercial district expanded to support the needs of the town's 16,000 residents. Overall growth has been relatively slow; however, Manteca remains a community based primarily in agriculture but with a number of businesses, including manufacturers (Stockton Savings and Loan Association n.d.; Hillman and Covello 1985).

Development in the Project Area

The project site is located south of Woodward Avenue and north of Sedan Avenue along South Manteca Road on the west side and Pillsbury Road on the east side. Over time, the land in the project area appears to have been used for agricultural purposes. By the early 1860s, George Trahern and John McMullen acquired land in the project area including the project site. By 1883, it appears that Trahern subdivided the land and John C. White became associated with the project site. The property remained in the White family through at least 1895 and by the early 1900s. Evans Searle Pillsbury acquired a significant portion of land in the project area including the project site. Pillsbury was a practicing attorney who had arrived in the San Joaquin County in 1864. Records indicate that he maintained ownership of the land until at least 1917. The earliest existing structure on the project site, a barn located at 21434 South Manteca Road, dates to 1920. Little is known of the property owners after 1917; consequently, it is not known if the barn is associated with Pillsbury (Compton 1895: Map; Handy 1862: Map; Lewis Pub Co 1890: Map; Quail 1912: Map; Reid1883: Map; U.S. Geological Survey 1912: Map PR1949; PR1952; Budd &Widdows 1917: Map).

The project site developed further during the early to mid twentieth century with the addition of residential and agricultural buildings in 1938 and 1950. Over the years, the project site has been primarily utilized for farming and remains semi rural in character. As the Manteca region population has begun to grow in recent years, a number of new residential developments have been built near the project site, including Mission Garden, Emerald Garden, and Woodward Park (San Joaquin County Assessor's Office 2008: APN 226-12-001; APN 226-12-003; APN 226-12-004).

Impact Analysis

Approach and Methodology

ICF Jones & Stokes conducted an investigation of the cultural resources in the cultural resources study area, which consisted of the project site. The investigation included a records search, field surveys, Native American consultation, contacting other interested parties, and additional research. The result of this investigation is described below and further information is provided in Appendix E.

Records Search

An ICF Jones & Stokes architectural historian conducted archival research at the California Room of the California State Library and the City of Manteca Public Library. In addition, property-specific information was obtained through the San Joaquin County Assessor's Office. The purpose of this research was to identify important historic people, events, and architectural trends that may have been associated with the project site.

A records search was conducted at the Central California Information Center (CCIC) at California State University Turlock, on August 31, 2005. The state's database of previous studies and recorded cultural resources were consulted, as well as pertinent historical inventories and historic maps. The records search indicated that one previous study, a sensitivity analysis, had been conducted in the vicinity of the project site (Napton 1993). This sensitivity study did not include a pedestrian inventory. It did not record any cultural resources at the project site. Napton indicates that a portion of the project site along Manteca Road is sensitive for historic-period cultural resources (1993). The 1854 General Land Office plat indicates that a road traversed the northern portion of the Pillsbury Estates site and the northeast corner of the Evans Estates site. A review of pertinent historical registers did not indicate any resources on the project site.

Field Surveys

On February 23, 2008, an ICF Jones & Stokes archaeologist conducted a pedestrian archaeological survey of the project site. Transects were spaced no wider than 15 meters to ensure maximum ground coverage. Ground visibility ranged from excellent to good (100% to 75%) throughout the project site.

On February 19, 2008, ICF Jones & Stokes architectural historians conducted a field survey of historic structures on the project site. As part of the field process, buildings and structures 50 years old or older were inspected, photographed, and documented.

Native American Consultation and Other Interested Parties

A search of the Native American Heritage Commission (NAHC) sacred lands database and list of potentially interested Native American representatives was requested on August 30, 2005. NAHC responded on September 2, 2005, stating that the search of its sacred lands database had failed to indicate the presence of Native American cultural resources in the immediate vicinity of the project site, and providing a list of one Native American representative. A contact letter describing the proposed project and indicating the project location was sent to the Native American representative on September 6, 2005. A telephone call was made to the Native American representative on April 9, 2007, and a message was left asking for a return call if there were any issues or concerns about the proposed project. As of present, no responses have been received.

On February 19, 2008, ICF Jones & Stokes sent letters to the Manteca Historical Society and Museum and the San Joaquin County Historical Society and Museum. The letters briefly described the proposed project and requested information about cultural resources in the immediate vicinity of the project site. As of October 22, 2008, ICF Jones & Stokes has not received any responses.

Summary of Cultural Resources Investigation Results

The following section describes known archaeological and architectural resources in or directly adjacent to the project site, and their significance findings. The completed California Department of Parks and Recreation (DPR) forms for the architectural resources are included in Appendix E.

Archaeological Resources

No archaeological resources were identified on the project site as a result of pre-field research, consultation with NAHC as well as local Native Americans, or the pedestrian field survey. A more detailed account of the effort to locate archaeological resources on the project site can be found in Appendix E.

Architectural Resources

There are no architectural resources 50 years old or older located on the Pillsbury Estates site. Three properties containing six architectural resources (two residences, three barns, and one shed) 50 years old or older are located on the Evans Estates site along South Manteca Road. All of the resources were evaluated for the CRHR as part of the proposed project. The results of the survey and evaluation of the resources are documented in Appendix E. The basic findings are summarized below.

21010 South Manteca Road (APN: 226-012-001)

The property at 21010 South Manteca Road contains one single-family residence and a large barn that date to 1938. The property is not known to be associated with events or people important to the City of Manteca, San Joaquin County, or the state overall.

The residence is a Minimal Traditional style building with Craftsman influences. The building is supported by a concrete slab foundation and takes form under a medium-pitched, cross-gabled roof which forms open eaves with a moderate overhang. The roof is covered with wood shingles; the roof eaves feature exposed rafters throughout. Walls are clad with brick façade siding at the north elevation and stucco siding on all remaining elevations. Vertical wood siding is located at the gabled ends. At the north elevation (main façade), a roof extension shelters a partial recessed porch with brick column supports. A gable roof extension shelters a single-entry wood door at the north elevation. Fenestration consists of sliding metal sash units throughout. A brick chimney is located on the west elevation.

The barn is located east of the residence. It is a one-and-a-half-story structure, which is supported by a concrete slab foundation and takes form under a high-pitched, side-gabled roof with slight overhang. A hay hood is located at the gable and the hay loft has been infilled with a modern aluminum sliding window. The roof is covered with corrugated metal. Walls are clad with vertical wood siding. One large, modern-equipment, metal, roll-up door and two single-entry roll-up metal doors are located on the north elevation. One metal, sliding-sash window is located at the gable. Both buildings are modest structures commonly found throughout agricultural areas of California and not indicative of a unique architectural style. In addition, modern windows and doors have compromised the historic integrity of the barn and the nearby modern residential development

has compromised the historic setting of the property. Because the property does not appear to be historically or architecturally significant and because it has lost integrity, it does not appear to meet the criteria for CRHR eligibility. The buildings are also not historical resources for the purposes of CEQA.

21338 South Manteca Road (APN: 226-012-003)

A single family residence, barn, and shed are located at 21338 South Manteca Road. Records indicate that all of the structures on the property were constructed in 1950. The buildings located on this property are not known to be associated with events or persons important to the City of Manteca, San Joaquin County, or the state overall.

The Ranch style residence is supported by a concrete slab foundation and takes form under a medium-pitch, cross-gable roof that forms closed eaves with a moderate overhang. The roof is covered with composition material. Walls are clad with stucco siding throughout. A brick façade extends along the lower fourth of wall on the west elevation. A two-story garage addition with a two-vehicle, roll-up door is located on the south side of the building. A small wood shed and a large barn structure are located behind the main residence to the east. The barn is front gabled and clad with stucco that matches the residence.

The agricultural buildings are utilitarian structures that do not embody distinctive architectural characteristics. Alterations to the barn, including the covering of exterior walls with stucco siding, have resulted in the property's loss of historic integrity. In summary, lacking historical and architectural significance as well as integrity, the buildings do not appear to meet the criteria for CRHR eligibility. The buildings are also not historical resources for the purposes of CEQA.

21434 South Manteca Road (APN: 226-012-004)

A barn, corral, and modern mobile home are located at 21434 South Manteca Road. The property is not known to be associated with events or people important to the City of Manteca, San Joaquin County, or the state overall.

The single-unit barn structure, which dates to 1920, is supported by a concrete slab foundation and takes form under a high-pitched, side-gable roof that forms open eaves with a slight overhang. The roof is covered with corrugated metal. Walls are clad with vertical wood siding. One large and two small rolling metal doors are located on both the north and south elevations. Doors on the south elevation are filled in. Filled in bays are located on the west elevation. The barn is surrounded by dirt with sparse overgrown grass. A large coral area with wood fencing is located northwest of the barn. The property contains modest structures commonly found throughout agricultural areas of California and not indicative of a unique architectural style. In addition, modern roll-up doors and infilled bays have compromised the historic integrity of the barn. Because the property does not appear to be historically or architecturally significant and because it has lost

integrity, it does not appear to meet the criteria for CRHR eligibility. The buildings are also not historical resources for the purposes of CEQA.

Impact Analysis

Approach and Methodology

CEQA requires project proponents to assess a project's potential effects on significant historical resources (i.e., those that are listed or eligible for listing in the CRHR or in a local register or survey that meets the requirements of PRC 5020.1[k] and 5024.1[g]). This entails the following steps.

- Identify potential historical resources.
- Evaluate the significance of identified historical resources.
- Evaluate the anticipated effects of a project on all significant historical resources.

Under CEQA, only effects on significant resources are considered potentially significant, so only those impacts need to be analyzed in detail.

Thresholds for Determining Significance

This analysis used criteria from CEQA Guidelines Section 15064.5(b)(1–2), which identifies a significant impact as one with the potential to cause a substantial adverse change in the significance of a historical resource. A substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. According to the CEQA Guidelines, the significance of a historical resource is materially impaired when a project would result in the following:

- demolition or material alteration in an adverse manner of those physical characteristics of a historical significance that justifies its inclusion in, or eligibility for inclusion in, the CRHR;
- demolition or material alteration in an adverse manner of those physical characteristics that account for its inclusion in a local register of historical resources pursuant to PRC 5020.1(k) or its identification in a historical resources survey meeting the requirements of PRC 5024.1(g) unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- demolition or material alteration in an adverse manner of those physical characteristics of a historical resource that convey its historical significance and justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Impacts and Mitigation Measures

Impact CR-1: Potential Destruction of Buried Archeological Resources (Less than Significant with Mitigation)

No archaeological resources were identified as a result of this study, but it is still possible that significant buried archaeological materials are present on the project site. Disturbance or destruction of these resources may result from ground-disturbing activities associated with project construction. This impact would be significant, but implementation of Mitigation Measure CR-1 would reduce this impact to a less-than-significant level.

Mitigation Measure CR-1: Stop Work in Case of Accidental Discovery of Buried Archeological Resources

If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or human bone, are inadvertently discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City and other appropriate agencies. (See also Implementation Measure RC-I-46 of the City General Plan [City of Manteca 2003]).

Impact CR-2: Destruction or Disturbance of Human Remains (Less than Significant with Mitigation)

No known human remains are present at the project site. It is possible that buried human remains were not be located as a result of this study due to a lack of surficial evidence. As such, human remains, particularly those outside a designated cemetery, could be encountered during ground-disturbing activities associated with project construction. This impact would be significant, but implementation of Mitigation Measure CR-2 would reduce this impact to a less-than-significant level.

Mitigation Measure CR-2: Stop Work in Case of Accidental Discovery of Buried Human Remains

If human remains of Native American origin are discovered during project construction, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of NAHC (PRC 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the county coroner has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin,

- the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98, or
- NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

Impact CR-3: Disturbance or Destruction of Significant Historic Resources (No Impact)

No architectural resources that meet the criteria of significance under CEQA are located on or adjacent to the project site. There would be no impact.

Chapter 7
Geology, Soils, and Paleontology

Introduction

This chapter describes the impacts of the Evans Estates–Pillsbury Estates Project (proposed project) on geology, soils, and paleontological resources[1] in the project area.

The key sources of information used in the preparation of this section are listed below. Specific reference information is provided in the text.

- *Geotechnical Engineering Investigation Report* for the proposed project (Krazan and Associates 2008a)
- *Addendum to Geotechnical Engineering Investigation Report* (Krazan and Associates 2008b)
- Maps and reports by the U.S. Geological Survey (USGS) and California Geological Survey (CGS)
- University of California Museum of Paleontology (UCMP) online database (University of California Museum of Paleontology 2008)
- *City of Manteca General Plan 2023* (City of Manteca 2003)

Environmental Setting

This section discusses the federal, state, and local regulations related to geology, soils, and paleontology that would apply to the proposed project. It then describes existing geologic and soil conditions and paleontological resources in the project area.

[1] Paleontological resources are defined as fossilized remains of vertebrates, invertebrates, and plants, as well as fossil tracks and trackways.

Regulatory Setting

Federal

Section 402 of the Clean Water Act/National Pollutant Discharge Elimination System

The federal Clean Water Act (CWA) is discussed in detail in Chapter 9, "Hydrology and Water Quality." Because CWA Section 402 is directly relevant to excavation and grading, additional information is provided here.

Amendments in 1987 to the CWA added Section 402p, which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. As described in Chapter 9 of this environmental impact report (EIR), the EPA has delegated to the State Water Resources Control Board (SWRCB) authority over the NPDES program in California; the program is implemented by the state's nine Regional Water Quality Control Boards (RWQCBs). Under the NPDES Phase II Rule, any construction activity disturbing 1 acre or more must obtain coverage under the state's General Permit for Stormwater Discharges Associated with Construction Activity (General Permit). General Permit applicants are required to prepare a notice of intent and a stormwater pollution prevention plan (SWPPP), and implement and maintain best management practices (BMPs) to avoid adverse effects on receiving water quality as a result of construction activities, including earthwork.

Antiquities Act

The federal Antiquities Act of 1906 was enacted with the primary goal of protecting cultural resources in the United States. As such, it explicitly prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines or imprisonment, for these acts. Neither the Antiquities Act itself nor its implementing regulations (43 CFR 3) specifically mentions paleontological resources. However, several federal agencies—including the National Park Service, U.S. Bureau of Land Management, and U.S. Forest Service—have interpreted objects of antiquity as including fossils. Consequently, the Antiquities Act represents an early cornerstone for efforts to protect the nation's paleontological resources.

State

Alquist-Priolo Earthquake Fault Zoning Act

California's Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (Public Resources Code [PRC] 2621 et seq.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (Earthquake Fault Zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones.

Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well defined." A fault is considered sufficiently active if one or more of its segments or strands show evidence of surface displacement during Holocene time (defined for purposes of the act as referring to approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones.

Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.

Local

City of Manteca General Plan 2023

The Seismic Safety Element of the *City of Manteca General Plan 2023* (City General Plan) stresses the importance of preventing the loss of lives, injury, or property damage due to geologic hazards, including seismic activity (City of Manteca 2003). In order to achieve this goal, the City identifies the building plan review process as the mechanism to enforce the following requirements:

- compliance with current building code requirements regarding building structural material and reinforcement;
- preparation of geological reports and/or geological engineering reports for proposed new developments located in areas of potentially significant geologic hazards;
- development of appropriate mitigation for geologic hazards, such as seismically induced liquefaction and settlement; and
- seismic-resistant design for public facilities, such as buildings, water tanks, and reservoirs

Further, the City General Plan identifies Implementation Measure S-I-1, which provides that "[a]ll new development shall comply with the current Uniform Building Code (UBC) requirements that stipulate building structural material and reinforcement."

The City General Plan also identifies the need to maintain an inventory of potentially hazardous buildings within the city and develop a program to mitigate the hazards they pose, through occupancy restrictions, retrofitting, or demolition. A separate policy recommends that the City maintain an inventory of its pre-1940 unreinforced masonry buildings and restrict changes in their occupancy and use pending results of engineering investigations.

City of Manteca Building Code

The City of Manteca (City) has adopted the International Building Code, 2006 edition, including Appendix Chapters 1, A1, C, I, and J as modified by the State of California (Manteca Municipal Code 15.04.010). The following sections of the code are particularly relevant to geology, soils, and geohazards.

- Chapter 16, Section 1613—Earthquake Loads
- Chapter 18—Soils and Foundations
- Appendix J—Grading

Existing Conditions

This section discusses existing conditions related to geology, soils, and paleontology in the project area.

Geology in San Joaquin Valley

The San Joaquin Valley is a deep, structurally controlled trough flanked by the Coast Ranges uplift on the west and by the Sierra Nevada on the east (e.g., Norris and Webb 1990).

The San Joaquin Valley is floored by a thick sequence of sedimentary deposits that range in age from Jurassic through Quaternary. Under the eastern and central portions of the valley, the base of the sequence likely rests on Mesozoic crystalline rock allied to the plutons of the Sierra Nevada; to the west, basement rocks are believed to be Franciscan metasediments and/or mélange. Mesozoic sedimentary rocks are now in the subsurface record marine deposition. They are overlain by Tertiary strata reflecting marine, estuarine, and terrestrial conditions, which are in turn overlain by Quaternary fluvial and alluvial strata recording uplift and erosion of the Sierra Nevada and Coast Ranges to approximately their present shape (e.g., Norris and Webb 1990).

To the west, the Coast Ranges geomorphic province is characterized by en echelon northwest-trending mountain ranges formed over the past 10 million years or less by active uplift related to complex tectonics of the San Andreas fault/plate boundary system (e.g., Norris and Webb 1990; Buising and Walker 1995; Atwater and Stock 1998). The eastern rangefront is defined by faults that have been interpreted as contractile features associated with shortening along an axis approximately normal to the rangefront (e.g., Wong et al. 1988; Sowers et al. 1992; Unruh et al. 1992; see also Jennings 1977 [regional mapping]), but may also locally accommodate a right-lateral component of motion (e.g., Richesin 1996).

East of the San Andreas fault, the Coast Ranges are broadly antiformal. The core of the uplift consists primarily of metasedimentary rocks and mélange of the Mesozoic Franciscan Complex (e.g., Jennings 1977). Outcrops of mafic and ultramafic units belonging to the Jurassic Coast Range Ophiolite are also locally present and are particularly well developed along the Ortigalita fault in the vicinity of Del Puerto Canyon (Wagner et al. 1990; Evarts et al. 1999). Mesozoic ultramafic rocks are also well exposed in the vicinity of San Benito Mountain. The eastern Coast Ranges rangefront is flanked by a generally eastward-younging sequence of Cretaceous through Quaternary clastic sedimentary strata. The lower portion of this sequence, where it is present, typically records deep marine deposition, although the upper portion reflects progressive growth and erosional dissection of the Coast Ranges uplift (Unruh et al. 1992; Richesin 1996). Quaternary alluvial strata accumulated on essentially modern topography buttress against the rangefront, and are locally folded and/or faulted, particularly along the southern portion of the rangefront. Active

alluvium and older Quaternary terrace deposits are present in the larger active stream valleys throughout the eastern portion of the Coast Ranges (e.g., Jennings, 1977; Wagner et al. 1990; Richesin 1996).

To the east of the San Joaquin Valley, the Sierra Nevada preserves the dissected remnants of a Mesozoic volcanic arc system similar to the modern Andes. The core of the range consists of plutonic rocks representing the roots of the arc. It is bordered on the eastern margin of the project area by generally westward-younging metavolcanic and metasedimentary rocks ranging in age from Paleozoic to Mesozoic. These strata are in turn overlain by Miocene through Quaternary fluvial and alluvial sediments that pass laterally into valley floor strata and reflect erosional dissection of the progressively uplifting Sierran massif (Jennings 1977; Bartow 1991).

Geology and Paleontology in the Project Area

The project area is immediately underlain by sedimentary units of Quaternary age, including the Modesto Formation of probable Late Pleistocene (Rancholabrean) age and overlying deposits of Holocene age (Bartow 1985; Wagner et al. 1990; Turlock Irrigation District 2004). Deposits of the Riverbank Formation of Late Pleistocene age also likely occur at depth beneath the project site (Allen pers. comm.). Although no fossils have been reported from the Riverbank Formation in San Joaquin County, UCMP records document a number of fossil localities in the Riverbank Formation in neighboring Sacramento, Fresno, Merced, Stanislaus, and Madera counties (University of California Museum of Paleontology 2008). An important assemblage of vertebrate fossils known from the Riverbank Formation occurs about 50 miles north of the project site, at the site of the Arco Arena, just west of the City of Sacramento (Allen pers. comm.).

The Modesto Formation consists of poorly indurated and sorted brown sandstone and siltstone with interbeds of pebble to cobble conglomerate, and has been interpreted as recording alluvial/fluvial deposition (Turlock Irrigation District 2004). It has yielded vertebrate fossils at a number of localities outside the immediate project vicinity, including remains of the extinct giant ground sloth (*Megalonyx jeffersonii*), Columbian mammoth (*Mammuthus columbi*), and giant Ice Age bison (*Bison latifrons*), as well as a variety of rodents and at least one species of snake (University of California Museum of Paleontology 2008). Because of its potential to contain vertebrate fossils, the Modesto Formation is considered highly sensitive for paleontological resources.

The Modesto Formation is overlain by sandy deposits of Holocene age interpreted as recording aeolian (wind-controlled) dune deposition. Holocene units are not typically considered sensitive for fossil resources, because biological remains are not considered fossils unless they are older than 10,000 years. There may be site-specific exceptions to this general approach, but the UCMP database contains no records for “fossil” (sensu lato) finds from Holocene units in San Joaquin County (University of California Museum of Paleontology 2008). Although two vertebrate fossils have been reported from Holocene units

in San Joaquin County, in the vicinity of the CCRC Farms Mandeville Island property in Stockton, approximately 13 miles north of the project site, no specimen data from this locality is available in the UCMP database (University of California Museum of Paleontology 2008). Thus, the paleontological sensitivity of overlying Holocene sand dune deposits is inferred to be low.

Soils

The project site is located on soils assigned to the Delhi fine sand, 0–5% slopes; Delhi loamy sand, 0–2% slopes; and Tinnin loamy coarse sand, 0–2% slopes (McElhiney 1992). In additional to native materials, approximately 4 feet of fill material consisting primarily of silty sand was encountered on the western portion of the site during the geotechnical investigation conducted for the proposed project (Krazan and Associates 2008a).

The Delhi fine sand, 0–5% slopes is a very deep soil formed on nearly level and gently sloping surfaces of inactive sand dune complexes. The parent material was aeolian (wind-deposited) sediment derived from granitic source rocks. The surface layer typically consists of brown fine sand approximately 10 inches deep, overlying an additional 50 inches of brown and yellowish brown fine sand. Locally, the surface layer may comprise loamy sand or loamy coarse sand. The Delhi fine sand is somewhat excessively drained. Permeability is rapid, runoff is slow, and water erosion hazard is slight. Shrink-swell potential is low (McElhiney 1992).

The Delhi loamy sand, 0–2% slopes, is also a very deep soil formed on nearly level and gently sloping surfaces of former sand dunes complexes in aeolian sediment derived from granitic sources. The surface layer typically consists of grayish brown and light brownish gray loamy sand approximately 16 inches deep, overlying approximately 10 inches of grayish brown loamy sand, which in turn overlies approximately 34 inches of pale brown sand. The surface layer locally consists of loamy fine sand or fine sand. Like the Delhi fine sand, the Delhi loamy sand is somewhat excessively drained. Permeability is rapid, runoff is slow, and water erosion hazard is slight. Shrink-swell potential is low (McElhiney 1992).

The Tinnin loamy coarse sand, 0–2% slopes, is a deep soil formed on nearly level alluvial fan surfaces in parent material derived from granitic source rocks. The surface layer typically consists of approximately 28 inches of grayish brown loamy coarse sand, overlying 25 inches of brown, mottled loamy coarse sand, which in turn overlies an additional 22 inches of pale brown, mottled loamy coarse sand. In some locations, the surface layer comprises loamy fine sand or sandy loam. The Tinnin loamy coarse sand is well drained. Permeability is rapid, runoff is slow, and water erosion hazard is slight. Shrink-swell potential is low (McElhiney 1992).

Based on the subsurface investigation performed for the project by Krazan and Associates (2008a), the predominant surface and shallow subsurface materials at the project site consist of silty sand, silty sand/sand, sand, clayey silty sands, silty

clay, and silty sand/sandy silt. Near-surface sands ranging from about 6 to 12 inches below ground surface (bgs) were identified as being loose, relatively weak, highly compressible, and potentially susceptible to seismic settlement. Below the surface soils and artificial fill, the investigation encountered approximately 6 to 9 feet of predominantly loose to medium dense silty sand and silty sand/sand. This was in turn underlain by alternating intervals of sand, silty sand/sand, silty sand, silty clay, and silty sand/sandy silt to the maximum depth explored of 50 feet bgs. In general, soils occurring at depths ranging from 6 to 50 feet bgs exhibited moderate strength characteristics and only slight compressibility.

Geologic Hazards

Primary Seismic Hazards—Surface Fault Rupture and Groundshaking

The project site is not located within any Earthquake Fault Zone delineated by the State of California pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (Hart and Bryant 1997), and it is not traversed by any faults recognized by the U. S. Geological Survey or current building codes as active (U.S. Geological Survey 2008). The project site is, therefore, considered unlikely to undergo surface fault rupture.

However, a number of active faults are present in the Coast Ranges and Bay Area to the west of the project site, close enough that the site and surrounds are likely to experience substantial seismic groundshaking during the lifespan of the proposed project. Although not zoned by the State of California, the San Joaquin fault and allied structures that demarcate the east margin of the Coast Ranges may be active (e.g., Unruh et al. 1992; Sowers et al. 1998). Farther west, state-zoned structures known to pose a groundshaking hazard to the project site include, from east to west, the Ortigalita, Greenville, Calaveras, Hayward, and San Andreas faults.

Recent studies estimate a 62% probability of at least one earthquake with a magnitude of 6.7 or greater (Richter scale) occurring on one of the faults of the greater Bay Area in the next 30 years and a 10% probability of a magnitude 7.0 or greater event during the same timeframe (U.S. Geological Survey Working Group on California Earthquake Probabilities 2003). Table 7-1 summarizes current information on earthquake recurrence intervals and maximum credible earthquake for key structures west of the project site.

Table 7-1. Maximum Credible Earthquake and Recurrence Interval for Principal Active Faults West of the Project Site

Fault	Magnitude of Maximum Credible Earthquake	Approximate Recurrence Interval
Ortigalita	6.5–6.75[b], 6.9[a]	2,000–5,000 years[b]
Greenville	6.9[a]	623 years[c] (southern segment)
		644 years[c] (northern segment)
Calaveras (southern)	6.2[a]	75 years[c]
Hayward	7.1[a] (entire fault)	330 years[a] (entire fault)
	6.5[a]–6.9[c] (southern segment)	161[c]–167[b] years (southern segment)
San Andreas	7.0–7.9[a]	210–400[a]

[a]Source: International Conference of Building Officials 1997.

[b]Source: Anderson et al. 1982.

[c]Source: U.S. Geological Survey Working Group on California Earthquake Probabilities 2003.

Secondary Seismic Hazards—Liquefaction and Ground Failure

Secondary seismic hazards refers to liquefaction[2] and related types of ground failure, as well as seismically induced landsliding. The State of California maps areas subject to secondary seismic hazards pursuant to the Seismic Hazards Mapping Act of 1990. However, seismic hazards maps have not been issued for the Manteca 7.5-minute quadrangle, in which the City of Manteca (including the project site) is located, and no such mapping is planned in the immediate future (California Geological Survey 2008).

As described above under "Soils," the results of subsurface investigation revealed that surface soils at the project site consist of approximately 6 to 12 inches of very loose silty sand. Below this surface layer of loose sand and artificial fill is a layer of loose to medium dense silty sand and silty sand/sand, which is in turn underlain by alternating intervals of sand, silty sand/sand, silty sand, silty clay, and silty sand/sandy silt to the maximum depth explored of 50 feet bgs. Groundwater was generally encountered at depths of 12.5 to 13.75 feet bgs. However, due to the medium dense to dense nature of sandy soils and moderate cohesiveness of silty clay soils encountered during the investigation at depths ranging from 6 to 50 feet bgs, soils occurring at or below the existing groundwater level were determined to be nonliquefiable. Thus, liquefaction potential at the project site is judged to be low (Krazan and Associates 2008a).

[2] *Liquefaction* is a phenomenon in which the strength and stiffness of a soil are reduced by earthquake shaking or other rapidly applied loading. Liquefaction and related types of ground failure are of greatest concern in areas where well-sorted sandy unconsolidated sediments are present in the subsurface and the water table is comparatively shallow.

Landslide and Other Slope Stability Hazards

The project site is located on very gentle valley floor topography. Consequently, the existing potential for slope failure, including seismically induced landsliding, is considered minimal to low. Landslide risk may be substantially greater in the Coast Ranges foothills to the west, where rugged topography is underlain by Franciscan rocks that are typically prone to various types of failures.

Impact Analysis

This section discusses the approach and methodology used to assess the impacts of the proposed project, beginning with the California Environmental Quality Act (CEQA) thresholds used to determine whether an impact would be significant and a discussion of how the thresholds were applied within the specific resource areas. This section also includes discussions of individual impacts relative to the thresholds; mitigation measures to minimize, avoid, rectify, reduce, eliminate, or compensate for significant impacts; and the overall significance of the impact with mitigation incorporated.

Based on the CEQA Guidelines, the proposed project would result in a significant impact if it would:

- expose people or structures to increased risk from 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;
- expose people or structures to increased risk related to strong seismic ground shaking;
- expose people or structures to increased risk related to seismically induced ground failure, including liquefaction;
- expose people or structures to increased risk of landslides or other slope failure;
- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse;
- be located on expansive soil, as defined in Table 18-1-B of the UBC (International Conference of Building Officials 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 wastewater; or
- substantially damage or destroy significant paleontological resources, as defined by the Society of Vertebrate Paleontology (SVP) (Society of

Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995). (The SVP definition of *significant paleontological resources* is discussed in detail under "Approach and Methodology" below.)

Approach and Methodology

Geology, Seismicity, and Soils

Potential impacts related to geology, seismicity, and soils were analyzed qualitatively, based on a review of available existing data for the project area. Analysis focused on the proposed project's potential to increase the risk of personal injury, loss of life, and damage to property, including project facilities, as a result of existing or reasonably foreseeable geologic, seismic, and soil conditions and processes in the project area.

Paleontological Resources

Analysis of impacts on paleontological resources followed the methodology recommended by SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995). These guidelines were developed in response to a recognized need for standardized methods to assess and mitigate impacts on paleontological resources, and are now widely accepted as an industry standard.

Because many fossil materials are buried in subsurface geologic units rather than exposed at the ground surface, it is often uncertain until project earthwork has made substantial progress whether any such resources will actually be encountered. Thus, impact analysis for paleontological resources operates based on probabilities of impact, with the goal of developing flexible strategies to support adaptive management based on information that may literally "come to light" during project construction. Consistent with these uncertainties, the SVP guidelines delineate the following two-phase process:

1. Assess the likelihood that the project's area of potential effect contains significant nonrenewable paleontological resources that could be directly or indirectly impacted, damaged, or destroyed as a result of the project. This is referred to as an area's paleontological sensitivity or sensitivity for paleontological resources. Note that the paleontological sensitivity of an area depends on the sensitivity of the individual geologic units present.
2. Based on the identified degree of sensitivity, formulate and implement measures to mitigate potential adverse impacts.

Table 7-2 defines SVP's sensitivity categories for paleontological resources and summarizes its recommended treatments to avoid adverse impacts in each sensitivity category.

Table 7-2. Recommended Treatment for Paleontological Resources, by Sensitivity Category

Sensitivity Category	Definition	Recommended Treatment
High Sensitivity	Geologic units from which vertebrate or significant invertebrate fossils or suites of plant fossils have been recovered.	▪ Preliminary survey and surface salvage before construction begins. ▪ Monitoring and salvage during construction. ▪ Specimen preparation; identification, cataloging, curation, and storage of materials recovered. ▪ Preparation of final report describing finds and discussing their significance. ▪ *All work should be supervised by a professional paleontologist who maintains the necessary collecting permits and repository agreements.*
Undetermined Sensitivity	Areas underlain by geologic units for which little information is available.	▪ Preliminary field surveys by a qualified vertebrate paleontologist to assess project area's sensitivity. ▪ Design and implementation of mitigation if needed, based on results of field survey.
Low Sensitivity	Areas underlain by geologic units that are not known to have produced a substantial body of significant paleontological material.	▪ Protection and salvage are generally not required. However, a qualified paleontologist should be contacted if fossils are discovered during construction, in order to salvage finds and assess the need for further mitigation.

Source: Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995.

As used in Table 7-2 and the significance criteria adopted for this analysis, the term *significant* refers to paleontological resources that fulfill one or more of the following criteria (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995):

- provide important information shedding light on evolutionary trends or helping to relate living organisms to extinct organisms;
- provide important information regarding the development of biological communities;
- demonstrate unusual circumstances in the history of life;
- represent a rare taxon or a rare or unique occurrence;
- are in short supply and in danger of being destroyed or depleted;
- have a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- provide important information used to correlate strata for which it may be difficult to obtain other types of age dates.

Consistent with these criteria, paleontological resources considered significant in California typically include vertebrate remains but may also include invertebrate fossils and plant fossils in some areas.

Impacts and Mitigation Measures

Impact GEO-1: 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 (Less than Significant)

The project site is not located within any Earthquake Fault Zone delineated by the State of California pursuant to the Alquist-Priolo Earthquake Fault Zoning Act, and it is not traversed by any faults recognized by the U. S. Geological Survey or current building codes as active (U.S. Geological Survey 2008). Accordingly, the risk of surface fault rupture at the project site is considered low, and the potential for impacts related to surface fault rupture is evaluated as less than significant. No mitigation is required.

Impact GEO-2: Potential for Increased Exposure of People or Structures to Hazards Related to Strong Seismic Groundshaking (Less than Significant)

The project site could be subject to strong seismic groundshaking as a result of earthquakes on a number of active faults located at varying distances to the west of the site, including the Ortigalita, Greenville, Calaveras, Hayward, and San Andreas faults. The principal concern related to seismic groundshaking is the potential for structural damage and related hazards to life and safety, which represent a potentially significant impact. However, all new structures would be designed and constructed to meet or exceed relevant requirements of the current IBC, as required by the City's Municipal Code. Adherence to IBC requirements would not entirely eliminate risks related to groundshaking damage, but would mitigate such risks consistent with the prevailing standard of care. Consequently, this impact is considered less than significant, and no mitigation is required.

Impact GEO-3: Potential for Increased Exposure of People or Structures to Hazards Related to Liquefaction and Ground Failure (Less than Significant)

The project site could be subject to strong seismic groundshaking as a result of earthquakes on a number of active faults located at varying distances to the west of the site, including the Ortigalita, Greenville, Calaveras, Hayward, and San Andreas faults. However, as discussed above, the potential for liquefaction at the site is considered low based on the characteristics of the native soils at the site (Krazan and Associates 2008a). Therefore, impacts related to liquefaction are expected to be less than significant. No mitigation is required.

Impact GEO-4: Potential for Increased Exposure of Persons or Structures to Landslide Hazards (Less than Significant)

Topography at and surrounding the project site is very gentle and the existing risk of landslide at the site is considered minimal. Creation of cut slopes and fill embankments during project construction could lead to a risk of localized slope failure, if the slopes are improperly designed or implemented. However, design and construction of the proposed project would conform with IBC grading requirements, along with any specific recommendations of the site-specific geotechnical investigation (Krazan and Associates 2008a and 2008b). Conformance to IBC standards, general good grading and excavation practices, and the specific recommendations identified in the site-specific geotechnical studies for the project would minimize the potential for failure of cut slopes and fill embankments. Therefore, impacts are expected to be less than significant and no mitigation is required.

Impact GEO-5: Contribution to Substantial Soil Erosion or Loss of Topsoil (Less than Significant with Mitigation)

Soil erosion can accelerate the delivery of sediment to surface waters, degrading water quality. It can also contribute to loss of topsoil resources. However, at approximately 240 acres, the project site is large enough that the project proponent will be required to prepare and implement a SWPPP that provides BMPs to control soil erosion during project construction. Compliance with IBC standards regarding finished site contouring and drainage is expected to effectively manage postconstruction (operational) runoff to avoid excessive erosion once the proposed development is in use. Consequently, project-related increases in soil erosion are expected to be less than significant.

There are two principal concerns related to loss of topsoil: (1) topsoil is a key component of a healthy, functional ecosystem and (2) topsoil is an essential resource to support agriculture. Because the project site is currently under cultivation and has been cultivated for some time, the most apparent loss would be topsoil as an agricultural resource. The proposed project would result in the direct conversion of 240 acres of farmland to nonagricultural uses. Depending on final project design, the project site's existing topsoil resource would be removed during project earthwork, although it may be redistributed on site. Removal of topsoil would represent a substantial loss of topsoil resources, a significant impact. The impact would be mitigated to the extent feasible by implementation of the following mitigation measure, and any residual impact is considered less than significant.

Mitigation Measure GEO-5: Stockpile Excavated Topsoil for Onsite Reuse.

The proponent will require the contractor(s) retained for project construction and landscaping to stockpile excavated topsoil so it can be reused for revegetation and landscaping.

Impact GEO-6: Location on a Geologic Unit or Soil that is Unstable or that Would Become Unstable as a Result of Construction (Less than Significant)

Potential soil instability issues at the project site include the presence of compressible soils and the potential for seismic settlement in loose, sandy soils. Based on the subsurface investigation performed for the project by Krazan and Associates (2008a), near-surface sands (ranging from about 6 to 12 inches feet bgs) were identified as being loose, relatively weak, highly compressible, and potentially susceptible to seismic settlement. To reduce potential hazards, the site-specific geotechnical investigation recommends that these soils be stabilized through recompaction (Krazan and Associates 2008a).

Additionally, approximately 4 feet of fill material was encountered on the western portion of the project site during the investigation. This material exhibits varying degrees of compressibility and susceptibility to seismic settlement, and thus may be unstable or may become unstable as a result of project construction. For fill soils that are not properly compacted, the geotechnical investigation recommends these soils be excavated and stockpiled for reuse as engineered fill. Implementation of the recommendations of the site-specific geotechnical investigation (Krazan and Associates 2008a) would reduce all impacts related to compressible soils and seismic settlement to a less-than-significant level. No mitigation is required.

Impact GEO-7: Location on Expansive Soils (Less than Significant)

Based on preliminary literature investigations, none of the project site soils has been identified as expansive. Impacts related to expansive soils are therefore expected to be less than significant, and no mitigation is required.

Impact GEO-8: Damage to Paleontological Resources (Less than Significant with Mitigation)

As discussed under "Environmental Setting," above, much of the project area is underlain either immediately or at depth by sedimentary deposits assigned to the Modesto Formation of Late Pleistocene (Rancholabrean) age, which is likely underlain at greater depth by deposits of the Riverbank Formation of Late Pleistocene age and thus could also be impacted by project-related ground-disturbing activities (Allen pers. comm.). Because both the Modesto and Riverbank Formations are known to contain vertebrate fossils, including remains of mammoth, bison, rodents, and reptiles, they are considered highly sensitive for paleontological resources. Depending on final project design, earthwork required for project construction could impact the Modesto Formation; deeper earthwork could also impact the underlying Riverbank Formation. If disturbance of the Modesto Formation or Riverbank Formation is required, the potential for significant impacts on paleontological resources is considerable based on the

identified sensitivity of these units. Impacts on paleontological resources would be reduced to a less-than-significant level by implementation of Mitigation Measures GEO-8a, GEO-8b, GEO8c, and GEO-8d.

Holocene units are not typically considered sensitive for fossil resources, because biological remains are not considered fossils unless they are older than 10,000 years. Consequently, project-related ground disturbance involving only materials of Holocene age is not expected to result in significant impacts on paleontological materials, and no additional mitigation is required.

Mitigation Measure GEO-8a: Evaluate Site-Specific Impact Potential

The project proponent will retain appropriately qualified and licensed personnel (e.g., qualified paleontologist as defined by the Society of Vertebrate Paleontology or California-licensed professional geologist with appropriate experience and expertise) to delineate the portions of the project (project area and/or specific project activities) for which Mitigation Measures GEO-8b and -8c are required. The evaluation will be based on available geologic and geotechnical information; detailed project design; proposed construction methods, including anticipated depth of disturbance; and existing site conditions, including pre-existing disturbance, if any. Mitigation Measure GEO-8b will be required in areas where project construction, staging, or access will affect highly sensitive (Pleistocene) strata exposed at the surface. In areas where highly sensitive strata would be involved in project-related ground disturbance, Mitigation Measure GEO-8c will also be required.

Mitigation Measure GEO-8b: Conduct Preconstruction Survey, Salvage, and Protection in Areas of Exposed Pleistocene Substrate

Before site preparation (including vegetation clearing) and project earthwork begin, the project proponent will retain a qualified professional paleontologist as defined by the Society of Vertebrate Paleontology's Conformable Impact Mitigation Guidelines Committee (1995) to conduct a surface survey and salvage operation covering any potentially affected surface exposures of deposits of Pleistocene age. The goal of the operation will be to ensure that any paleontological materials exposed at the surface in project work, staging, and access route areas are recovered and properly prepared and curated, or protected from damage using exclusion fencing or other appropriate means. Protection will be designed and installed in consultation with the City and the project engineering consultant to ensure that it is appropriate and effective but does not unduly impede construction activities.

Mitigation Measure GEO-8c: Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities

The project proponent will retain a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology's Conformable Impact Mitigation Guidelines Committee (1995), to monitor during any ground-disturbing activities affecting the Modesto Formation or

underlying strata of Pleistocene age. Tasks requiring monitoring would include clearing, grubbing, excavation/grading, and any other ground-disturbing activities involving the Modesto Formation or other strata of Pleistocene age.

Mitigation Measure GEO-8d: Stop Work if Vertebrate Remains are Encountered during Construction

If vertebrate fossils are discovered during construction or other project activities, all work on the site will stop immediately until a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology's Conformable Impact Mitigation Guidelines Committee (1995), can assess the nature and importance of the find and recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds. All such work will be carried out by a qualified professional paleontologist. The project proponent will be responsible for ensuring that the recommendations of the paleontological monitor regarding treatment and reporting are implemented.

Chapter 8
Hazards and Hazardous Materials

Introduction

This chapter describes the impacts from hazards and hazardous materials that would result from the Evans Estates–Pillsbury Estates Project (proposed project). The following key sources of data and information were used in the preparation of this chapter.

- *Phase I Environmental Site Assessment for the Raymus–Evans Estates* (Advanced GeoEnvironmental, Inc. 2005; Appendix F)
- *Phase I Environmental Site Assessment and Phase II Limited Soils Assessment for the Pillsbury Estates* (Krazan & Associates, Inc. 2007; Appendix G)
- *City of Manteca General Plan 2023* (City of Manteca 2003)
- *Manteca General Plan Draft Environmental Impact Report* (Wade Associates 2003)

Environmental Setting

This section defines concepts and terminology related to hazards and hazardous materials. It then presents federal, state, and local regulations related to hazards and hazardous materials that would apply to the proposed project. Finally, it describes existing conditions related to hazards and hazardous materials in the project area.

Concepts and Terminology

Hazard: 1) Potential for radiation, a chemical, or other pollutant to cause human illness or injury. 2) In the pesticide program, the inherent toxicity of a compound. Hazard identification of a given substance is an informed judgment based on verifiable toxicity data from animal models or human studies (U.S. Environmental Protection Agency 2006a).

Hazardous Substance: 1) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. 2) Any substance that the U.S. Environmental Protection Agency (EPA) designates must be reported if a designated quantity of the substance is spilled in the waters of the United States or is otherwise released into the environment (U.S. Environmental Protection Agency 2006a). In the workplace, hazardous and toxic substances are generally in the form of chemicals that are capable of causing harm. In this definition, chemicals include dusts, mixtures, and common materials such as paints, fuels, and solvents (U.S. Department of Labor 2006).

Hazardous Waste: Waste substances that can pose a substantial or potential hazard to human health or the environment when improperly managed. Waste is hazardous if it possesses at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity—or appears on special EPA lists (U.S. Environmental Protection Agency 2006b).

Household Hazardous Waste: Common, everyday products (e.g., paint, paint thinner, herbicides, and pesticides) that people use in and around their homes, which, due to their chemical nature, can be hazardous if not properly disposed. Other household items that are considered less hazardous to handle, but which contain hazardous materials, are batteries, lamps, televisions, and computer monitors. Such items are classified by the EPA and the California Department of Toxic Substances Control (DTSC) as Universal Waste (Wade Associates 2003).

Household Waste (Domestic Waste): Solid waste, composed of garbage and rubbish, that normally originates in a private home or apartment house. Domestic waste may contain a significant amount of toxic or hazardous waste (U.S. Environmental Protection Agency 2006a).

Non-Household Hazardous Waste: Hazardous waste can also be generated by small businesses, industry, and government facilities. Small businesses and government facilities may be classified as small quantity generators or conditionally exempt small quantity generators. Industries are typically classified as either small quantity generators or large quantity generators (Wade Associates 2003).

Pesticide: Substances, or a mixture thereof, intended for preventing, destroying, repelling, or mitigating any pest. The term also refers to any substance or mixture intended for use as a plant regulator, defoliant, or desiccant (U.S. Environmental Protection Agency 2006a). Pesticides are also a general term for insecticides, herbicides, and fungicides. Insecticides kill or prevent the growth of insects. Herbicides control or destroy plants. Fungicides control or destroy fungi. Some pesticides can accumulate in the food chain and contaminate the environment (California Department of Toxic Substances Control 2008).

Pollutant: Generally, any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems (U.S. Environmental Protection Agency 2006a).

Toxicity: Ability to harm human health (e.g., via injury, death, or cancer) or the environment. One of the criteria used to determine whether a waste is a hazardous waste is its "toxicity characteristic" (California Department of Toxic Substances Control 2008). Acute toxicity involves harmful effects in an organism through a single or short-term exposure. Chronic toxicity is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure, sometimes lasting for the entire life of the exposed organism. Subchronic toxicity is the ability of the substance to cause effects for more than 1 year but less than the lifetime of the exposed organism (U.S. Environmental Protection Agency 2006a).

Toxic Substance: A chemical or mixture that may present an unreasonable risk of harm to health or the environment (U.S. Environmental Protection Agency 2006a).

Toxic Wastes: Substances that are harmful or fatal when ingested or absorbed (e.g., mercury, lead). When toxic wastes are land disposed, contaminated liquid may leach from the waste and pollute groundwater (U.S. Environmental Protection Agency 2006a).

Regulatory Setting

This section describes the federal, state, and local regulations related to hazards and hazardous materials that would apply to the proposed project.

Federal

The EPA is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials.

1976 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) enables EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thereby regulating the generation, transport, treatment, storage, and disposal of hazardous waste at all facilities and sites in the U.S. The 1986 amendments to the RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. The RCRA focuses only on active and future facilities and does not address abandoned or historical sites.

The Federal Hazardous and Solid Waste Amendments are the 1984 amendments to the RCRA that required phasing out land disposal of hazardous waste. Some of the other mandates of this law include increased EPA enforcement authority, more stringent hazardous waste management standards, and a comprehensive underground storage tank (UST) program.

In 1980, Congress conditionally exempted oil and gas exploration and production wastes from the hazardous waste management requirements of Subtitle C of RCRA (Section 3001[b][2] [A] of RCRA and Section 8002[m] of RCRA). In 1988, EPA published "Regulatory Determination for Oil and Gas and Geothermal Exploration, Development, and Production Wastes" in the Federal Register (FR) at 53 FR 25447 (July 6, 1988), along with lists of wastes determined to be either exempt or non-exempt. Examples of exempt wastes included drilling fluids and drill cuttings.

1980 Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) and 1986 Superfund Amendment and Reauthorization Act Title III

The Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) was passed to facilitate the cleanup of toxic waste sites in the U.S. In 1986, Superfund was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws), also called the Emergency Planning and Community Right-to-Know Act, which states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of cleanup even if the material was dumped illegally when the property was under different ownership. These regulations also establish reporting requirements that provide the public with information on hazardous chemicals in their communities to enhance community awareness of chemical hazards and facilitate development of state and local emergency response plans.

National Primary Drinking Water Regulations

National Primary Drinking Water Regulations are legally enforceable standards that apply to public water systems (i.e., large-scale municipal water systems that rely on surface water sources such as rivers, lakes, and reservoirs). These regulations protect public health by limiting the levels of contaminants in drinking water.

State

California regulations are generally equal to or more stringent than federal regulations. EPA has granted DTSC primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous wastes and other wastes are discussed below.

Title 27 California Code of Regulations Section 20210

Solid waste classifications under California Code of Regulations (CCR) Title 27 Section 20210 (27 CCR 20210) are used to determine applicability of waste management requirements.

California Water Code Section 13173 (Designated Waste)

"Designated waste" is defined under California Water Code (CWC) 13173 as follows:

> Designated waste…shall be discharged only at Class I waste management units (for information regarding Class I Units, see Chapter 15, Division 3, Title 23 of this code) or at Class II waste management units which comply with the applicable SWRCB-promulgated provisions of this subdivision and have been approved by the RWQCB for containment of the particular kind of waste to be discharged. Decomposable wastes in this category can be discharged to Class I or II land treatment units.

Designated waste is either:

- hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code or
- nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

1985 Hazardous Materials Release Response Plans and Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act requires businesses using hazardous materials to prepare a Hazardous Materials Business Plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

1972 Hazardous Waste Control Act

The 1972 Hazardous Waste Control Act established the California Hazardous Waste Control Program under DTSC, which is similar to, but broader and more comprehensive than, the federal RCRA program, regulating wastes and activities

not covered by the federal program. The act is implemented by regulations contained under 22 CCR, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transport; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under this act and 22 CCR, a generator of hazardous waste must complete a "manifest" that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with DTSC. The manifest is a shipping document that travels with hazardous waste from the point of generation; through transportation; to the final treatment, storage, and disposal facility. Each party in the chain of shipping, including the generator, signs and keeps one of the manifest copies, creating a "cradle-to-grave" tracking of the hazardous waste.

1970 Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the Governor's Office of Emergency Services. The office coordinates the responses of other agencies, including EPA, California Highway Patrol, Regional Water Quality Control Boards, air quality management districts, and county disaster response offices.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents is subject to monitoring and personal safety equipment requirements established under 8 CCR 1532.1 and administered by the California Occupational Safety and Health Administration (Cal-OSHA). The primary intent the requirements is to protect workers, but compliance with some of these regulations would also reduce potential hazards to nonconstruction workers and program area occupants as a result of required controls on site monitoring, reporting, and other activities.

Local

City of Manteca General Plan 2023

The *City of Manteca General Plan 2023* (City General Plan) Safety Element contains the following policies and implementation measures related to hazards and hazardous materials (City of Manteca 2003).

Policies

S-P-15. The City shall maintain an awareness of hazardous materials throughout the Manteca region.

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.

Implementation Measures

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.

S-I-11. Work with San Joaquin County and other public agencies to inform consumers about household use and disposal of hazardous materials.

S-I-12. Cooperate fully with Union Pacific Railroad and other public agencies, such as the California Highway Patrol (CHP), in the event of a hazardous material emergency.

Existing Conditions

This section describes existing conditions in the project area as they related to hazards and hazardous materials.

San Joaquin Valley Air Basin

Nearly every afternoon, pollutants are carried from the ocean through mountain passes during the summer months. Streams of air carrying Bay Area emissions mix with locally generated pollution from automobile traffic, small engine exhaust, industry, and agriculture in the San Joaquin Valley and are diverted both north and south (San Joaquin Valley Air Pollution Control District 2008).

According to the San Joaquin Valley Air Pollution Control District, during 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 the San Joaquin Valley, through Tehachapi Pass, into the Southeast Desert Air Basin.

During winter, wind speed and direction data indicate that wind occasionally originates from the south end of the San Joaquin Valley and flows in a north-northwesterly direction. Also during winter, the San Joaquin Valley experiences light, variable winds of less than 10 mph. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high CO and PM10 concentrations (San Joaquin Valley Air Pollution Control District 2002).

Superimposed on this seasonal regime is the diurnal wind cycle. In the San Joaquin Valley, this cycle takes the form of a combination of sea breeze-land breeze and mountain-valley regimes. The sea breeze-land breeze regime has a sea breeze flowing into the San Joaquin Valley from the north during the day and a land breeze flowing out of the San Joaquin Valley at night. The mountain-valley regime has an upslope flow during the day and a downslope flow at night. These phenomena add to the complexity of regional wind flow and pollutant transport within the San Joaquin Valley Air Basin (San Joaquin Valley Air Pollution Control District 2002).

Manteca and Surrounding Areas

Hazardous materials and wastes are currently stored, used, and transported in Manteca by businesses and industry. According to the *Manteca General Plan Draft Environmental Impact Report* (General Plan EIR), no sites in Manteca have been classified as confirmed hazardous materials or waste sites. Additionally, Manteca does not contain sites that are identified on the Cortese List. (Wade Associates 2003)

According to Appendix G of the CEQA Guidelines, the proposed project would result in a potentially significant impact if it would be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, or a private airstrip, and result in a safety hazard for people residing or working in the project area. The nearest existing airport facility, Stockton Metropolitan Airport, is the only commercial service airport in San Joaquin County. It is located on the southern boundary of Stockton, approximately 11 miles from Manteca (San Joaquin Council of Governments 2008). Due to the airport's distance from the project site, it would not present hazards to the future residential developments on the project site.

The City of Manteca currently relies entirely on groundwater to meet the water demand of its residents. The groundwater basin beneath Manteca contains both naturally occurring and introduced contaminants; however, the City's water supply continues to comply with federal and state drinking water standards. (Wade Associates 2003)

EPA has set the maximum contaminant level for arsenic in drinking water at 10 micrograms per liter (U.S. Environmental Protection Agency 2008); Manteca's wells average about 12.4 micrograms per liter and will require additional treatment to meet standards (City of Manteca 2005a). Thirteen of Manteca's existing 18 wells exceed the arsenic standard and require treatment to continue operation. The 2005 Water Master Plan includes a plan to address compliance

with the EPA arsenic rule, including installation of treatment systems in many of the City's existing wells, as well as an assumption that at all new wells constructed through 2025 will require treatment for arsenic (City of Manteca 2005a). Onsite hydrology and drainage is described in detail in Chapter 9, "Hydrology and Water Quality."

Project Site

Evans Estates Site

The Phase I environmental site assessment (Phase I ESA) for Evans Estates (Advanced GeoEnvironmental Inc. 2005; Appendix F) is summarized below.

The Phase I ESA was performed under American Society of Testing and Materials (ASTM) Practice E 1527-00 standards, which define good commercial and customary practices for conducting a Phase I ESA of a parcel of commercial real estate. The goal of these standards is to identify the recognized environmental conditions (RECs) in connection with a site. ASTM defines RECs as "the presence or likely presence of any hazardous substances as defined by [Superfund] or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release into the ground, groundwater, or surface water." All conditions that are determined to be de minimis (those that do not present a material risk to public health or the environment and generally would not be the subject of an enforcement action) are not RECs. According to the review of historic aerial photographs and historic topographical maps, the majority of the Evans Estate site was undeveloped or developed as agricultural land (i.e., orchards or row crops) from approximately 1914 until present. The residences currently located on the site were presumed to be developed prior to 1952.

The review of the historical aerial photographs and historical 7.5-minute U.S. Geological Survey (USGS) topographical maps revealed no features on or adjacent to the Evans Estate site that are of significant environmental concern. Building permits were reviewed at the San Joaquin County (County) Building Department; none raised environmental concerns. The County Fire Prevention Bureau was contacted regarding permitting of USTs or above-ground storage tanks (ASTs) and hazardous materials violations for 21010, 21336, 21434, and 21710 South Manteca Road. The bureau's review revealed that these records would be on file with the County Environmental Health Department (EDH). As part of the Phase I ESA, Environmental Data Resources, Inc. (EDR) was contacted to provide a City Directory Abstract for the subject property addressees (Environmental Data Resources, Inc. 2005). Available Haines cross-referenced directories from 1970 through 2004 were reviewed in approximately 5-year increments as specified by the ASTME-1527-00 standards. None of the directory listings raised environmental concern.

Chemicals, such as pesticides, herbicides and fertilizers, used in some agricultural practices can have impacts on soil and groundwater. No direct indications (e.g., chemical storage or dumping, spilled powders, discolored or

stained soil, stressed vegetation) of significant adverse impacts from agricultural chemicals were found on the site. Complete groundwater and/or soil testing would be required to determine impacts for certain.

Records for three wells were found over 1-mile from the Evans Estates site, including one well located south of East Sedan Avenue, just south of the site. According to the Phase I ESA, all wells have been plugged and abandoned. Appendix F contains a map the well locations. Additionally, the Evans Estates site is located just outside of the McMullin Ranch Gas Field, but the wells associated with this gas field do not appear to be on or adjacent to the Evans Estate site. As such, gas field operations likely have not had an impact on the Evans Estate site.

According to the Phase I ESA, the EDR report contains USGS and California Water Service water well information. Three USGS wells were drilled in the 1970s to the north and northwest of the Evans Estates site; none appeared to be on or adjacent to the Evans Estates site.

The Phase I ESA found no evidence of RECs in connection with the Evans Estates site; however, the following site development issues were presented.

- Parcel 04, at 21434 South Manteca Road, included one small barn near the northwest corner; most of the parcel was an almond orchard.
- Parcel 27, 21710 South Manteca Road, was utilized as an almond orchard.
- An old AST and apparently abandoned UST were located in a debris area east from the Parcel 01 residence. The two tanks had apparently been moved to their current location, and no indications of their prior use were evident, according to AGE. According to the Phase I ESA, the old UST was removed from the property in 1989.
- Several domestic and agricultural water wells and at least three in-ground septic systems we located on the property. In-ground structures provide a pathway for trespass of contaminants to the subsurface. The report noted no direct evidence of impact.
- The assessment did not include an inspection of residential buildings on the site for asbestos. The age of the buildings on the site indicate that a survey should be performed.

Pillsbury Estates Site

The 2007 Phase I ESA and Phase II Limited Soils Assessment (LSA) for Pillsbury Estates (Krazan & Associates, Inc. 2007; Appendix G), in conformance with the applicable ASTM E 1527-05 standards (Krazan & Associates, Inc. 2007), is summarized below.

Phase I Environmental Site Assessment

At the time of the December 6, 2007, site reconnaissance the Pillsbury Estates site was comprised of 80 acres of rural residential and agricultural property

(County Assessor's parcel numbers 226-120-07, 226-120-08, and 226-120-09). According to the Phase I ESA for Pillsbury Estates, the following features were observed on the site.

- A 3,878-square-foot wood-frame dwelling and an attached garage constructed of brick and stucco siding on a Portland cement concrete (PCC) slab-on-grade foundation were located in the east-central portion of the site. A detached pump house was located approximately 15 feet southeast of the dwelling. The dwelling and pump house were locked and inaccessible. According to Mr. Marvin Brocchini, the owner of the site, no hazardous materials are stored or used in the dwelling or pump house. Mr. Brocchini stated that the pump house contains one domestic water well, which provides potable water to the dwelling, and indicated that the dwelling is connected to an onsite septic system and associated leach fields located northwest of the dwelling. No evidence of hazardous materials storage/waste was observed in proximity to the dwelling or pump house.
- A pile of discarded empty fertilizer containers, cardboard boxes, and paper bags was observed approximately 100 feet southwest of the dwelling. Additionally, two spray rigs were observed north and northeast of the discarded materials. No evidence of surface staining or leakage was observed in association with the discard pile or spray rigs.
- Two electrically powered agricultural water wells were observed in the northeastern and northwestern portion of the site. According to Mr. Kent Van Gronigen, the farmer who maintains the almond orchards on the site, the agricultural water well in the northwestern portion of the site is inactive. No evidence of hazardous materials storage/waste or surface staining was observed in proximity to the agricultural water wells.
- A diesel-powered irrigation pump enclosed by a chainlink fence was observed near the center of the site. The fenced area was locked and inaccessible. Through/over the fence, a 500-gallon diesel AST was observed inside the fenced area; it was mounted on a cradle over a PCC slab without a secondary containment structure. No evidence was apparent from this distance of surface staining or leakage in association with the diesel AST. Seven apparently empty unlabeled agricultural chemical containers were observed resting on the unpaved ground in the northeastern portion of the fenced area. No evidence was apparent from this distance of surface staining or leakage in association with the containers.
- A PCC standpipe equipped with a debris filter was observed approximately 15 feet southwest of the fenced area. No evidence of hazardous materials storage/waste was observed in association with the standpipe.
- A green waste pile was observed in the west-central portion of the site. No evidence of hazardous materials storage/waste was observed in association with the green waste pile.
- Six pole-mounted electrical transformers were observed on the site. The transformer casings displayed no visual evidence of leakage and the ground surface below the transformers displayed no evidence of discoloration. Pacific Gas & Electric (PG&E), which owns the transformers, did not

respond to requests pertaining to the date of installation of the onsite transformers. Consequently, the study did not reveal whether the onsite transformers contain polychlorinated biphenyls (PCB) fluids. Despite the absence of apparent visual evidence of unauthorized releases of insulating fluids, any future release/leak of insulating fluids from the onsite transformers would require that PG&E be contacted to test the transformers for PCB fluids or to remove/replace them prior to any development of the site.

- Exposed surface soils did not exhibit obvious signs of discoloration. No obvious evidence of USTs (e.g., vent pipes, fill pipes, dispensers) was noted; no standing water or major depressions were observed; and no indications of former structures, such as foundations, were observed.

The review of County EHD records for storage and/or use of USTs, leaking USTs, or hazardous materials revealed no records for the Pillsbury Estates site and one record of a UST property adjacent to the site. The same records review at the County Office of Emergency Services, State Water Resources Control Board, California Environmental Protection Agency, and DTSC revealed no records on or adjacent to the Pillsbury Estates site. Additionally, no Superfund National Priorities List (NPL) sites were identified within a 1-mile radius of the site.

Phase II Limited Soils Assessment

Review of historical aerial photographs and an interview conducted with Mr. Van Gronigen, indicated that the Pillsbury Estates site was used for agricultural purposes from at least 1937 to the present. According to Mr. Van Gronigen, no persistent pesticides/ herbicides have been stored on the site or applied to the crops grown on the site since at least 1997, when he began working on the site. It is not known if environmentally persistent pesticides/herbicides were applied to the crops grown on the site prior to 1997. The sampling and analysis of surface soils from properties with similar agricultural histories has typically yielded non-detectable results or very low concentrations of environmentally persistent pesticides. Therefore, the potential for elevated concentrations of environmentally persistent pesticides/herbicides in the near-surface soils of the site is low. However, the Phase II LSA, conducted by Krazan & Associates, Inc. at the request of Mr. Brocchini, assessed the presence or absence of organochlorine pesticides associated with the historical use of the site for agricultural purposes. Specifically, the Phase II LSA included the collection of eight three-part composite soil samples and chemical analysis of the soils samples.

No evidence of an environmental impact to onsite surface soil such as odors or staining was noted in the soils encountered during the field activities. Analytical results of soil samples collected at the site (C-I through C-8) revealed no detectable concentrations of organochlorine pesticides including dichlorodiphenyldichloroethylene (DDE). dichlorodiphenyldichloroethane (DDD), and dichlorodiphenyltrichloroethane (DDT). Consequently, the results revealed no discernable impact from organochlorine pesticides. The Phase II

LSA states that further assessment of the site for organochlorine pesticides is not warranted.

Properties Adjacent to the Project Site

The surrounding land uses are residential, rural residential, and agricultural. Based on the Phase I ESAs, it is unlikely that significant quantities of hazardous materials are stored on properties adjacent to the project site. One exception is the Coit Property adjacent to the project site to the east. According to the Phase I ESA for Pillsbury Estates, a UST at an adjacent property was on file at the County EDH. This UST is summarized below.

The Coit Property, at 4747 North West Lane, operates an agriculturally exempt 350-gallon diesel UST. A County EHD inspection conducted on May 15, 1990, did not note any UST violations. No release violations are on file with the County EHD for this property; however, County EHD files contain no recent records pertaining to this UST. There is no evidence to suggest that this UST has posed an adverse impact on the Pillsbury Estates site; however, because it is located hydraulically upgradient of the Pillsbury Estates site, any contamination attributable to the UST would migrate to the site. The expense and/or liability associated with any investigation and remediation would likely be the responsibility of the Coit Property owner.

Impact Analysis

Approach and Methodology

For the purposes of this analysis s*ensitive receptors* are defined as individuals who have the potential to come into direct or indirect contact with a released substance. Sensitive receptors include nearby schools (i.e., school within 0.25 mile of the project site) and residential populations likely to be affected by project activities or operation. No existing schools area within 0.25 mile of the project site; the nearest school is approximately 0.5 mile from the site. (See Chapter 12, *Utilities and Service Systems*, for more information about public service systems near the project site). Of the three existing single-family homes located on the project site, one would be removed under the proposed project. The remaining homes on the project site as well as the rural residences (to the east, south, and west) and subdivisions (to the north) located within 0.25 mile of the project site would be considered sensitive receptors.

Thresholds of significance were determined based on Appendix G of the CEQA Guidelines and by using professional judgment and standard practices. An impact was considered to be significant if it would:

- expose the public or the environment to a significant hazard through the routine transport, use, or disposal of hazardous materials;

- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- produce hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or
- be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, or a private airstrip, and result in a safety hazard for people residing or working in the project area.

Impacts and Mitigation Measures

This section describes impacts related to hazards and hazardous materials that would result from the proposed project, including their significance, and any measure(s) required to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impact.

Impact HAZ-1: Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Operation (Less than Significant)

Project operations would not include the use or transportation of significant amounts of potentially hazardous materials, including fuels and other hazardous liquids. Residential uses do not typically result in the generation, routine transport, treatment, storage, and use of significant quantities of hazardous materials or wastes. The proposed project would therefore not result in a significant hazard to workers, the public, or the environment through the routine transport, use, or disposal of hazardous materials. Compliance with applicable regulations and hazardous materials plans would minimize potential exposure and risk. This impact is considered less than significant; no mitigation is required.

Impact HAZ-2: Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Construction (Less than Significant with Mitigation)

Construction of the proposed project could expose construction workers, the public, or the environment to hazardous materials through their use or disposal. Small amounts of hazardous materials, including fuels and other hazardous liquids, would be used during project construction.

Clearing of the project site required for project construction would involve demolition of several structures; removal of existing refuse, debris, and soil piles; and removal of an irrigation pump, a PCC standpipe, six pole-mounted electrical transformers, and several domestic and agricultural water wells and septic systems. Additionally, grading and excavation associated with construction may result in the discovery of unmapped underground features.

Because the project site includes agricultural lands, hazardous levels of agricultural chemicals could be present on isolated portions of the site. As discussed above, in addition to a Phase I ESA, a Phase II LSA was conducted for the Pillsbury Estates site by Krazan & Associates, Inc. (Krazan & Associates, Inc. 2007; Appendix G), in conformance with the applicable ASTM E 1527-05 standards. The Phase II LSA included the collection of eight three-part composite soil samples and chemical analysis of the soils samples. The results revealed no discernable impact from organochlorine pesticides associated with the historical use of the site for agricultural purposes. The Phase II LSA concluded that further assessment of the site for organochlorine pesticides is not warranted. Based on this assessment, there would be no significant potential impact related to agricultural chemicals associated with the historical use of the Pillsbury Estates site for agricultural purposes,

Since such analysis has not been done for the Evans Estates site, Mitigation Measure HAZ-2a would help reduce this impact to a less-than-significant level.

Underground pipelines that contain asbestos, not uncommon on properties with a history of agricultural use, could also be present on the project site. Onsite structures that would be demolished could contain asbestos or lead-based paint. Exposure to these chemicals could have significant impacts on construction workers. Additionally, the following potential sources of hazardous chemicals or materials on the project site would be removed prior to project construction: debris and soil piles of unknown origin, including a green waste pile, six pole-mounted electrical transformers that may contain PCB fluids, at least three in-ground septic systems. These facilities and refuse deposits could expose workers and the environment to hazardous materials during their removal.

This impact is potentially significant. However, due to the small quantities involved, the incorporation of the safety standards in Mitigation Measures HAZ-2b, HAZ-2c, HAZ-2d, and HAZ-2e would reduce this impact to a less-than-significant level.

Mitigation Measure HAZ-2a: Screen Surface Soils on Evans Estates Site for Residuals from Agricultural Chemicals and Other Hazardous Materials

To reduce the potential for human exposure to potentially harmful pesticide, fertilizer, and other chemical residues, the project proponent will retain a qualified hazardous materials consultant to take a sample of field screen surface soils for residuals from agricultural chemicals prior to construction. Additionally, the structure dripline soils around existing buildings and any remaining foundations of former buildings will be tested for lead, asbestos, and pesticides prior to construction.

The County EDH will review the results of soils sampling or screening. If results indicate the presence of hazardous concentrations of agricultural chemicals and other hazards, the project proponent will ensure that soils are excavated and properly disposed of prior to construction.

Mitigation Measure HAZ-2b: Properly Remove Hazardous Materials and Hazardous Material Containers from the Project Site

The project proponent will remove any containers of known hazardous substances from the project site. If a UST is found during project construction, the project proponent will obtain a permit from the County EHD for proper removal. Containers of known hazardous substances will be removed and recycled in accordance with federal, state, and local regulations. In addition, debris piles, including the green waste pile, will be properly disposed of prior to grading. If any hazardous materials are discovered, a qualified environmental health and safety specialist will be retained by the project proponent to assess the situation and determine proper removal and disposal procedures.

Mitigation Measure HAZ-2c: Prepare an Asbestos and Lead Paint Survey Report and Properly Dispose of Asbestos and Lead Paint by Certified Asbestos Abatement Contractor and Certified Lead Inspector/Assessor

The project proponent will hire a certified asbestos abatement contractor and certified lead inspector/assessor to prepare an Asbestos and Lead Paint Survey Report. If asbestos or lead paint is located during the survey, an abatement work plan will be prepared by County EHD in compliance with local, state, and federal regulations for removal of such materials. The abatement work plan will ensure that any lead paint or asbestos-containing materials (from the structures or any underground pipes) are removed and disposed of prior to grading, excavation, construction, or any other activities that would disturb the material.

Mitigation Measure HAZ-2d: Notify Contractors of Presence of Asbestos and Lead Paint

The project proponent will notify contractors working on the project site of the potential presence of any asbestos and lead paint prior to work. The contractors will be provided with a copy of the Asbestos and Lead

Paint Survey Reports and a list of asbestos removed by the asbestos abatement contractor during abatement activities, to be prepared by the project proponent. The contractors will be instructed not to disturb asbestos during their work. Contractors will be responsible for informing the landfill of the contractor's intent to dispose of lead paint and asbestos waste and for segregating and characterizing waste streams prior to disposal.

Mitigation Measure HAZ-2e: Properly Abandon Septic Systems

The project proponent will abandon the onsite septic systems according to applicable procedures, including, but not limited to, California Health and Safety Code Sections 117415-117420 and Ordinance Code of San Joaquin County Section 9-1110. The project proponent will obtain a permit from the County EHD and hire licensed sewage haulers to pump and remove the sewage. The County EHD will inspect the site to ensure that the septic systems have been properly abandoned.

Impact HAZ-3: Potential Hazard to the Public or the Environment through Upset or Accident Conditions (Less than Significant with Mitigation)

Construction of the proposed project could expose construction workers, the public, or the environment to hazardous materials through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. Accidental releases of small quantities of these substances could contaminate soils and degrade the quality of surface water and groundwater, resulting in a public safety hazard. This impact is potentially significant.

Compliance with Cal-OSHA and federal standards for the storage and handling of fuels, flammable materials, and common construction-related hazardous materials, and for fire prevention and implementation of Mitigation Measure HAZ-3 would reduce this impact to a less-than-significant level. Cal-OSHA requirements are found in California Labor Code, Division 5, Chapter 2.5. Federal standards are found in federal OSHA regulations and standards (29 CFR). Stormwater pollution prevention plan (SWPPP) regulations and Mitigation Measure HYD-1a described in Chapter 9, "Hydrology and Water Quality," will reduce water quality impacts to a less-than-significant level.

Mitigation Measure HAZ-3: Develop and Implement Plans to Reduce Exposure to Hazardous Conditions

A site-specific safety plan and operations and maintenance plan will be prepared by the project proponent for review and approval by the Manteca Fire Department (MFD). A fire safety plan will also be prepared by the project proponent for review and approval by MFD. The

proponent will also develop and implement a hazardous materials management plan that addresses public health and safety issues by providing safety measures including release-prevention measures; employee training, notification, and evacuation procedures; and adequate emergency-response protocols and cleanup procedures. The hazardous materials management plan will be consistent with relevant regulations and guidelines, including those recommended and enforced by MFD, and include procedures in the event of a spill of hazardous materials in an amount reportable to MFD (as established by MFD guidelines). This plan will be submitted prior to the approval of grading permits for review and approval by MFD.

Impact HAZ-4: Potential Exposure of School Children to Hazardous Materials (Less than Significant)

As previously noted, no existing schools are located within 0.25 mile of the project site; the nearest school is approximately 0.5 mile from the project site. Additionally, as discussed under Impact HAZ-1, residential uses do not typically result in the generation, routine transport, treatment, storage, and use of significant quantities of hazardous materials or wastes. Thus, this impact would be less-than-significant.

Compliance with applicable regulations and hazardous materials plans and implementation of Mitigation Measures HAZ-2a through HAZ-2e and HAZ-3 would further minimize any potential exposure and risk.

Impact HAZ-5: Significant Hazard from Location on a Site that Is Included on a List of Hazardous Materials Sites (No Impact)

The records review search documented in the Phase I ESA for the Evans Estates site indicated that no facilities listed on regulatory agency databases researched by EDR are located on or adjacent to the project site. No environmental liens or known recorded land use environmental deed restrictions pertaining to the project site were noted. There would be no impact.

Impact HAZ-6: Potential Impairment or Interference with an Adopted Emergency Response Plan (No Impact)

The project site is not located in the immediate vicinity of any emergency services providers and no arterial routes pass through the project site. Project construction is not likely to result in any road closures or detours. There would be no impact.

Impact HAZ-7: Potential Exposure of People or Structures to Risk from Wildfires (No Impact)

The project site is currently bound by residential uses to the north, and agricultural uses to the east, south, and west; these uses are not generally considered to increase the potential for wildfires. Additionally, the terrain is relatively flat, enabling easy access for emergency vehicles. The proposed project would add 860 residential structures and likewise increase the number of residents. The proposed project would not have the potential to expose people or homes to wildfire risk. There would be no impact.

Impact HAZ-8: Located within an Airport Land-Use Plan Area or within 2 Miles of an Existing Airport (No Impact)

No airport is located within 2 miles of the project site. There would be no impact.

Chapter 9
Hydrology and Water Quality

Introduction

This chapter describes the impacts on hydrology and water quality that would result from the Evans Estates–Pillsbury Estates Project (proposed project). The following key sources of data and information were used in the preparation of this chapter.

- *City of Manteca General Plan 2023* (City of Manteca 2003)
- *California's Groundwater—Bulletin 118, Update 2003* (California Department of Water Resources 2006)
- *Draft 2005 Water Master Plan* (Kennedy/Jenks Consultants 2005) *Memorandum: Evans Estates and Pillsbury Estates Water Supply Assessment/Verification* (WSA) (City of Manteca 2008b) (Appendix H—Part 1)
- *Memorandum: Evans Estates–Pillsbury Estates Water Supply* (City of Manteca 2009) (Appendix H—Part 2)
- *Storm Drain Master Plan* (West Yost and Associates 2006)

Environmental Setting

This section discusses federal, state, and local regulations related to hydrology and water quality that would apply to the proposed project. It then describes existing conditions related to hydrology and water quality in the project area.

Regulatory Setting

Federal

Federal Clean Water Act

The federal Clean Water Act (CWA) is the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following paragraphs provide additional details on specific sections of the CWA.

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by the U.S. Environmental Protection Agency (EPA). In California, the State Water Resources Control Board (SWRCB) is authorized by EPA to oversee the NPDES program through the nine geographically separated Regional Water Quality Control Boards (RWQCBs). (See related discussion under "Porter-Cologne Water Quality Control Act" below). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. Relevant NPDES permits are discussed in more detail under "State Regulations," below.

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States (i.e., oceans, bays, rivers, streams, lakes, ponds, and wetlands) must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality, including projects that require federal agency approval, such as the issuance of a Section 404 permit, also must comply with CWA Section 401.

Safe Drinking Water Act

The Safe Drinking Water Act, as amended in 1986 and 1996, requires the protection of drinking water and its sources (i.e., rivers, lakes, reservoirs, springs, and groundwater wells). The act authorizes EPA to set national standards for drinking water to protect against pollutants. EPA, states, and local agencies work together to enforce these standards.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), also known as the California Water Code, is California's statutory authority for the protection of water quality. Under this act, the state must adopt water quality policies, plans, and objectives that protect the state's waters. The act sets forth the obligations of the SWRCB and RWQCBs pertaining to the adoption of water quality control plans (basin plans) and establishment of water quality objectives. Unlike CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater.

Municipal Separate Storm Sewer System Permit

A Municipal Separate Storm Sewer System (MS4) is any conveyance or system of conveyances that is owned or operated by a state or local government and is designed for collecting and conveying stormwater that is not part of a Publicly Owned Treatment Works (i.e., not a combined sewer). MS4 regulations apply to MS4s serving populations of 100,000 or more, although some MS4s with populations under 100,000 can be designed for permit coverage.

RWQCBs issue MS4 permits that regulate stormwater discharges in the vicinity and upstream of the project site. RWQCBs are required to establish stormwater discharges for MS4s. The MS4 permits detail requirements for new development and significant redevelopment projects and include specific sizing criteria for treatment best management practices (BMPs).

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers state water rights and water quality functions. The SWRCB and its nine RWQCBs administer water rights and enforce pollution control standards. The SWRCB and RWQCBs are responsible for ensuring implementation and compliance with the provisions of CWA and the Porter-Cologne Act.

The proposed project is situated within the jurisdiction of the Central Valley RWQCB. The Central Valley RWQCB has the authority to implement water quality standards through the issuance of permits for discharges to waters within its jurisdiction. It also is responsible for preparing a basin plan that identifies beneficial uses of the San Joaquin River and its tributaries and water quality objectives for the protection of beneficial uses

The Central Valley RWQCB Basin Plan for the Sacramento and San Joaquin River basins provides water quality objectives and standards for both river basins. The plan contains specific water quality objectives for bacteria, dissolved

oxygen, pH, pesticides, electrical conductivity, total dissolved solids, temperature, turbidity, and trace elements. It also includes objectives for groundwater quality that pertain to bacteria, chemical constituents, radioactivity, taste, color, and toxicity.

California and Clean Water Act Section 303(d)

CWA Section 303(d) requires states to develop lists of water bodies that will not attain water quality standards after implementation of the minimum required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires states to develop a total maximum daily load (TMDL) for each of the listed pollutants and water bodies. A TMDL is the amount of loading that the water body can receive and still meet water quality standards. The relevant 303(d) listings for water bodies in the project area are described below, under "Surface Water Quality."

National Pollution Discharge Elimination System Permitting

The RWQCB issues permits under the NPDES program, the relevant aspects of which are described below.

Construction Activities

Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Permit for Construction Activities (General Construction Permit), which requires the applicant to file a public notice of intent (NOI) to discharge stormwater and prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities, along with a demonstration of compliance with relevant local ordinances and regulations and an overview of the BMPs that will be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Dewatering Activities

While small amounts of construction-related dewatering are covered under the General Construction Permit, the RWQCB also has adopted a General Dewatering Permit. This permit applies to various categories of dewatering activities and likely would apply to the proposed project if construction required dewatering in quantities greater than those allowed by the General Construction Permit and discharging the effluent to surface waters. The General Dewatering Permit contains waste discharge limitations and prohibitions similar to those in the General Construction Permit. To obtain coverage, the applicant must submit an NOI and a pollution prevention and monitoring program (PPMP). The PPMP must include a description of the discharge location, discharge characteristics,

primary pollutants, receiving water, treatment systems, spill prevention plans, and other measures necessary to comply with discharge limits. A representative sampling and analysis program must be prepared as part of the PPMP and implemented by the permittee, along with record keeping and quarterly reporting requirements during dewatering activities.

Local

City of Manteca Storm Drain Master Plan

The 2006 Storm Drain Master Plan provides for the City's compliance with Section 401 (p) of the Clean Water Act for an MS4 and with General Permit Number CA000004, Water Quality Order No. 2003-005-DWG 9 (West Yost and Associates 2006). The 2006 Storm Drain Master Plan builds on the several previous master planning efforts and updates (West Yost and Associates 2006). With the City's municipal stormwater NPDES permit (General Permit Number CA000004, Water Quality Order No. 2003-005-DWG 9), the Storm Drain Master Plan outlines the City's standards for maintaining water quality and identifies a comprehensive set of priorities, activities, and strategies that constitute the City's minimum control measures and BMPs. These control measures and BMPs are designed to reduce pollutants in stormwater to the maximum extent practicable. This includes both construction and post-construction measures that would be applicable to the proposed project.

City of Manteca Public Facilities Implementation Plan

The *City of Manteca Public Facilities Implementation Plan* (City of Manteca 1993) identifies a series of specific improvements required to accommodate drainage of the existing urban areas of the city. In addition, the plan identifies other measures that apply to future development; it requires that, wherever possible, the land ultimately required for each improvement (included in the drainage master plan) will be preserved before development occurs in an area. Storm drainage and flood protection facilities should be constructed when each new development begins. Manteca has relied predominantly on the South San Joaquin Irrigation District (SSJID) lateral and drain facilities for terminal drainage. In concert with development, the SSJID facilities have been realigned into rights-of-way or structurally upgraded to be compatible with land conversion from agricultural to urban use.

As in the past, drainage improvements will be constructed in a timely manner in order to maintain the level of service (LOS) standard. This is accomplished by constructing the storm drainage and flood protection facilities for each new project and by having the necessary facilities in place at the time of occupancy. The City presently administers a variety of regulations designed to prevent flooding and address stormwater management. These include a flood ordinance, various provisions of the zoning ordinance and subdivision ordinance, and construction codes for residential and nonresidential developments.

City of Manteca General Plan 2023

The Resource Conservation Element of the *City of Manteca General Plan 2023* (City General Plan) provides the following policies and implementation measures to help reduce urban contaminants from polluting receiving water bodies (City of Manteca 2003).

Policies

RC-P-13. Protect the quality of Manteca's groundwater.

Implementation Measures

RC-I-21. The City shall regularly monitor water quality in City wells for evidence of toxics, saltwater intrusion, and other contaminants.

RC-I-24. Comply with the Regional Water Quality Control Board's regulations and standards to maintain and improve groundwater quality in Manteca.

In addition, the City General Plan contains the following goals, policies, and implementation measures to protect Manteca's groundwater supplies.

Goals

Goal RC-1. Minimize the consumption of water to reasonable levels consistent with a high level of amenities and quality of life for City residents and visitors.

Goal RC-2. Maximize the beneficial uses of water by recycling water for irrigation and other non-potable uses.

Goal RC-7. Protect water quality in the San Joaquin River and in the area's groundwater basin.

Policies

RC-P-4. The City shall require water conservation in both City operations and private development to minimize the need for the development of new water sources.

RC-P-12. Minimize pollution of waterways and other surface water bodies from urban runoff.

RC-P-13. Protect the quality of Manteca's groundwater.

RC-P-14. Encourage participation by the County and surrounding communities in a basin-wide groundwater management study.

Implementation Measures

RC-I-1. Continue to implement standards for water-conserving landscape practices, including the use of drought-tolerant plants, for both public and private projects.

Existing Conditions

This section discusses the existing conditions related to hydrology and water quality in the project area.

Hydrology

Surface Water

The San Joaquin River is the major drainage feature in the project area. Manteca is located on the relatively higher ground between Lone Tree Creek to the north and the Stanislaus River to the south, with the San Joaquin River to the southwest and west. Walthall Slough, a tributary to the San Joaquin River, forms the southwestern boundary of Manteca. SSJID operates drainage facilities that pass through Manteca and carry a portion of the city's drainage. Because of topography, drainage facilities generally follow an east-to-west alignment. Storm drainage is gravity-discharged from the project site north to French Camp Outlet Canal (FCOC), which eventually drains to the French Camp Slough and then to the San Joaquin River and the Sacramento–San Joaquin River Delta (West Yost and Associates 2006). All SSJID drains in Manteca flow to the FCOC, a SSJID facility (West Yost and Associates 2006).

Groundwater

The project site lies within the Eastern San Joaquin Subbasin, which is part of the San Joaquin Valley Groundwater Basin. The Eastern San Joaquin Subbasin has a surface area of 707,000 acres, or 1,110 square miles (California Department of Water Resources 2006). The subbasin is drained by the San Joaquin River and several of its major tributaries, including the Stanislaus, Calaveras, and Mokelumne rivers (California Department of Water Resources 2006). Water-bearing formations of significance in this subbasin include: Alluvium and Modesto/Riverbank Formations; flood basin deposits; Laguna Formation; and Mehrten Formation (California Department of Water Resources 2006).

Groundwater levels have seen a decline over the last 40 years of monitoring. Data show that levels have declined at an average rate of 1.7 feet per year and have dropped as much as 100 feet in some areas (California Department of Water Resources 2006). According to *California's Groundwater—Bulletin 118, Update 2003* (Bulletin 118), overdraft during the last 40 years has reduced storage by as much as 2 million acre-feet. Manteca contains areas of locally high groundwater

(California Department of Water Resources 2006). At the project site, groundwater levels have been shown to vary at depths between 10 and 20 feet (San Joaquin County 2006).

Water Quality

Surface Water

Beneficial use impairments result from several factors but are generally due to point-source and non-point-source pollutants. Point-source pollutants include discharges of wastewater from municipal sewage treatment plants and industrial and commercial facilities. Non-point-source pollutants include urban runoff containing oils, greases, and toxic chemicals; construction runoff; livestock and animal wastes; and runoff from agricultural and residential areas

Generally, surface water quality in Manteca is considered sufficient for municipal and agricultural activities, wildlife, and recreation; however, the San Joaquin and Stanislaus rivers that surround Manteca are listed as impaired under CWA Section 303(d) (see "Regulatory Setting," above). Section 303(d) establishes the TMDL process to assist in guiding the application of state water quality standards, requiring states to identify streams with impaired water quality (i.e., those affected by the presence of pollutants or contaminants) and establish the TMDL or the maximum quantity of a particular constituent that a water body can assimilate without experiencing adverse effects. The San Joaquin River from the Merced River to the south delta boundary (the reach that passes to the west of Manteca) is 303(d) listed for boron, DDT, electrical conductivity (EC), Group A pesticides, mercury, toxaphene, and unknown toxicity (Central Valley Regional Water Quality Control Board 2006). The lower Stanislaus River is 303(d)-listed as impaired for Diazinon, Group A pesticides, mercury, and unknown toxicity (Central Valley Regional Water Quality Control Board 2006).

Groundwater

The majority of the groundwater in the Eastern San Joaquin Subbasin is characterized by calcium-magnesium-bicarbonate- or calcium-sodium-bicarbonate-type water. Large areas of chloride-type water are located along the western portion of the subbasin (California Department of Water Resources 2006). According to Bulletin 118, water quality samples were taken from 174 wells in the Eastern San Joaquin Subbasin, which showed that the total dissolved solids ranged from 30 to 1,632 milligrams per liter (mg/L) and averaged about 310 mg/L (California Department of Water Resources 2006). EC in the groundwater ranged from 78 to 5,390 micromhos per centimeter (µmhos/cm) (California Department of Water Resources 2006). Some of the highest EC values were found along the western part of the subbasin along the San Joaquin River alignment.

As a result of declining water levels, poor-quality water has been moving east along a 16-mile front on the east side of the delta (California Department of Water Resources 2006). This saline water has continued to move eastward from the Stockton area. In addition, large areas of elevated nitrate in the groundwater exist within the subbasin located southeast of Lodi, south of Stockton, and east of Manteca (California Department of Water Resources 2006). The elevated nitrate is likely a result of dairy practices.

In Manteca, groundwater wells produce water that generally meets or exceeds all Title 22 Reclamation Criteria primary drinking water standards. Some wells have exhibited taste and odor problems as a result of high iron and manganese levels. In addition, one well in the eastern portion of Manteca has produced water containing dibromochloropropane (DBCP), an agricultural pesticide; however, a wellhead treatment system has been installed on this well so that it meets state drinking water standards. The EPA has set the maximum contaminant level for arsenic in drinking water at 10 micrograms per liter (U.S. Environmental Protection Agency 2008); Manteca's wells average about 12.4 micrograms per liter and will require additional treatment to meet standards (Kennedy/Jenks Consultants 2005). Thirteen of Manteca's existing 18 wells exceed the arsenic standard and require treatment to continue operation. The 2005 Water Master Plan included a plan to address compliance with the EPA's arsenic rule, including installation of treatment systems in many of the City's existing wells, as well as the assumption that at all new wells constructed through 2025 will require treatment for arsenic (Kennedy/Jenks Consultants 2005).

Flooding

FEMA categorizes flood-prone areas based on the frequency of occurrence. Figure 9-1 shows the location of the FEMA-defined 100-year floodplain (areas with a 1% annual chance of flooding**)** and the 500-year floodplain in the vicinity of the project site (Federal Emergency Management Agency 2005). The primary flood hazard is the San Joaquin River (approximately 4.25 miles from the project site) and its tributaries, most notably Walthall Slough (approximately 3.15 miles from the project site).

The project site is located in Zone X (areas outside of the 100-year floodplain) as defined by FEMA's Flood Insurance Rate Map (FIRM) (Figure 9-1**).**

Water Supply

Manteca receives its water supply from two sources: groundwater from local municipal wells and surface water from SSJID. The local groundwater basin is considered to be subject to "critical conditions of overdraft." Overdraft conditions have existed for many years. The maximum sustained yield of the basin is estimated at 1 acre-foot per acre (afa) per year; currently, groundwater pumping in Manteca is approximately 2.4 afa per year, contributing to this condition of overdraft.

The SSJID's surface water supplies are obtained from the Stanislaus River through pre-1914 water rights and post-1914 appropriative rights for direct diversion and diversion to storage. SSJID operates a water treatment plant near its Woodward Reservoir; treated water is conveyed to Manteca through a series of pipelines. The planned use of surface water will reduce Manteca's demand for groundwater to within the maximum aquifer yield of 1 afa per year.

Historically, the City has relied upon groundwater as it sole supply of potable water. Groundwater has provided a safe, reliable, and sustainable supply for decades. However, as growth has continued, the groundwater basin has exhibited overdraft, resulting in declining water tables throughout San Joaquin County. SSJID, in conjunction with the cities of Manteca, Tracy, Lathrop, and Escalon, has undertaken the construction of the South County Surface Supply Project, including a new water treatment plant and transmission infrastructure, to address basin overdraft. Phase I of this project was completed in 2005, when the City began receiving water.

The City's WSA for the proposed project (City of Manteca 2008b) was adopted by Resolution R2008-77, on March 3, 2008. The City Council Resolution approving the WSA and the WSA/Verification is included as Appendix H of this EIR. According to the WSA, water demand in Manteca (based on gross residential demand) is 0.474 gallon per minute per dwelling unit (City of Manteca 2008b). The WSA states that surface water (deliveries from SSJID of up to 18,500 acre feet, from SSJID by 2027), in combination with existing and planned groundwater supplies, will provide adequate potable water for the proposed project (City of Manteca 2008b).

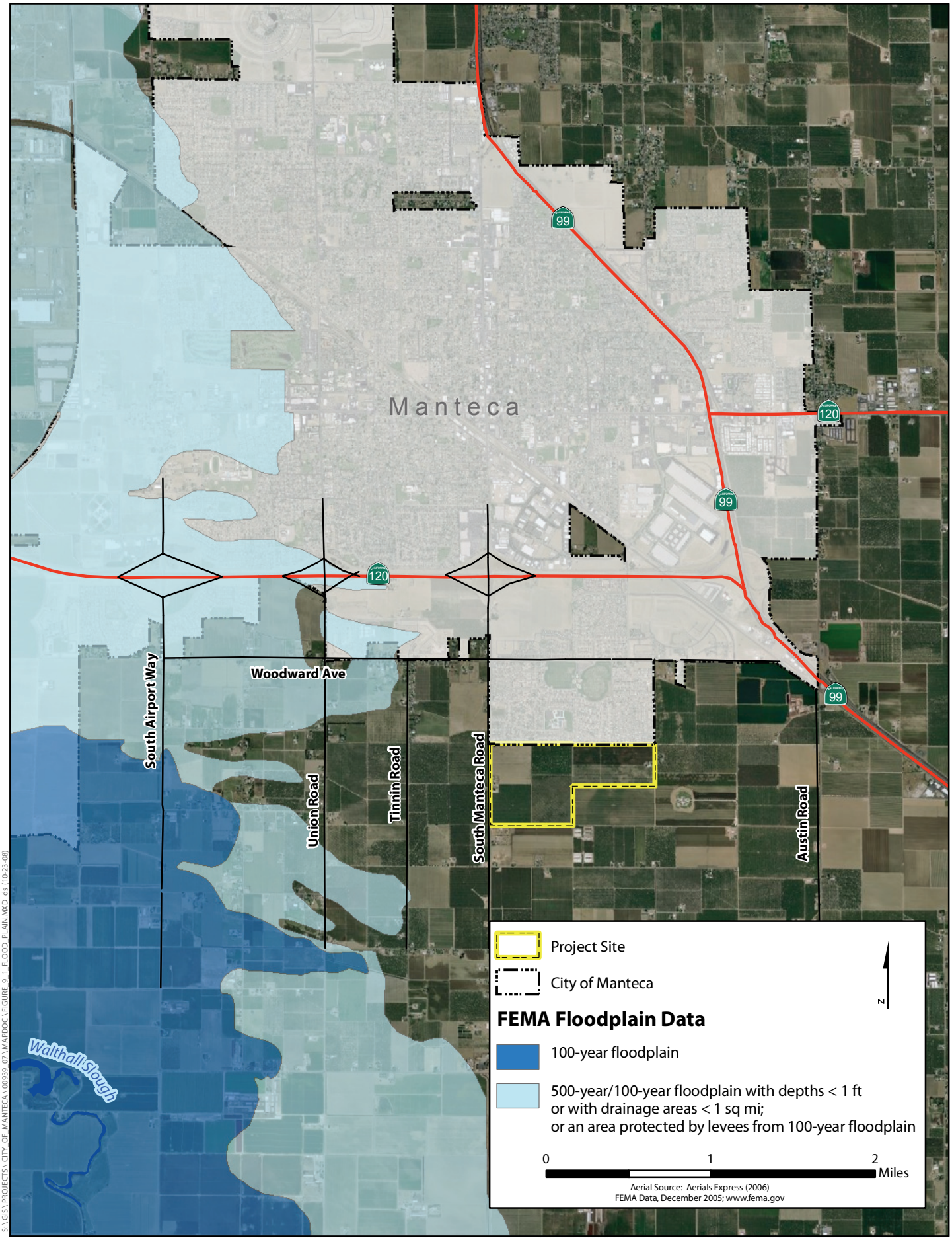
Impact Analysis

This section discusses the approach and methodology used to assess the impacts of the proposed project, including the California Environmental Quality Act (CEQA) thresholds used to determine whether an impact would be significant and a discussion of how the thresholds were applied within the specific resource areas. This section also includes discussions of individual impacts relative to the thresholds; mitigation measures to minimize, avoid, rectify, reduce, eliminate, or compensate for significant impacts; and the overall significance of the impact with mitigation incorporated.

Approach and Methodology

Thresholds of significance were determined based on Appendix G of the CEQA Guidelines and by using professional judgment and standard practices. The proposed project would result in a significant impact if it would:

- result in insufficient water supplies available to serve the project from existing entitlements and resources or require new or expanded entitlements;
- violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality;



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Figure 9-1
Floodplains in the Vicinity of the Project Site

- substantially deplete groundwater supplies or substantially interfere with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site 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;
- place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year floodplain 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.

Review of the thresholds of significance indicated the proposed project would not cause exposure of persons or property to increased risks involving seiche, tsunami, or mudflow because of the project site's distance from the ocean and the relatively flat topography. Therefore, this topic is not addressed further in this EIR. The remaining thresholds identified above are discussed in the analysis below.

Impacts and Mitigation Measures

Impact HYD-1: Impacts on Water Quality as a Result of Construction-Related Earth-Disturbing Activities (Less than Significant with Mitigation)

Construction-related earth-disturbing activities during project construction would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality. During site grading, trenching and other construction activities create areas of bare soil that can be exposed to erosive forces for long periods of time. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation, such as the in-situ conditions of the existing almond orchard. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading could result in increased erosion and sedimentation to surface waters, such as the San Joaquin River.

While existing agricultural activities at the project site may already result in the release of sediment, the extent of earth disturbance resulting from project construction would likely result in new and intensified release of sediments. Specific activities that could have impacts on water quality include the construction of housing, parking lots, roads, and community facilities; trenching for sewer and stormwater facilities; the realignment of the existing agricultural canal; and the installation of the municipal well.

If precautions are not taken to contain or capture sedimentation, these activities could result in substantial sedimentation in stormwater runoff and result in a significant impact on surface water quality. Implementation of Mitigation Measures HYD-1a and HYD-1b would minimize the potential erosion- and sedimentation-related water quality impacts and would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-1a: Comply with NPDES Requirements

To reduce or eliminate construction-related turbidity or sediment water quality effects, the City will require the project proponent to comply with the Storm Drain Master Plan (West Yost and Associates 2006), including, but not limited to, Chapter 6, "B. Design Standards," and Chapter 3, "4.5.2 Flow Based Treatment." In addition, the City will require the project contractors to obtain coverage under the General Construction Permit before the onset of any construction activities, where the disturbed area is 1 acre or greater in size. A SWPPP will be developed by a qualified engineer or erosion-control specialist, in accordance with the Central Valley RWQCB requirements for NPDES compliance, reviewed by the City Public Works Department, and implemented prior to the issuance of any grading permit. The SWPPP will be kept on site during construction activity and will be made available upon request to representatives of the RWQCB.

Compliance and coverage by the SWMP and General Construction Permit will require controls of pollutant discharges that utilize BMPs and technology to reduce erosion and sediments to meet water quality standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other non-point-source runoff. Measures range from source control, such as reduced surface disturbance, to the treatment of polluted runoff, such as detention basins.

BMPs to be implemented as part of the *Stormwater Management Program* and General Construction Permit (and SWPPP) may include the following.

- Implement temporary erosion-control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) to control erosion from disturbed areas.
- Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to

decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.

- Cover, or apply nontoxic soil stabilizers to, inactive construction areas (i.e., previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

The project contractors will select a combination of BMPs that is expected to minimize runoff and remove contaminants from stormwater discharges. The final selection of BMPs will be subject to approval by the RWQCB. The City will verify that an NOI has been filed with the SWRCB and that a SWPPP has been developed before allowing construction to begin. The City will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance. If necessary, the City will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

Mitigation Measure HYD-1b: Clean Paved Areas with Street Sweeping Equipment

To minimize the amount of pollutants entering the storm-drain system during construction, the project proponent will ensure that project roadways and other paved areas are cleaned regularly using street-sweeping equipment. Additionally, litter and debris that may accumulate on the streets around the project site will be regularly collected and properly disposed of. These measures will be carried out at least monthly, if construction occurs during the rainy season (October–April). These activities will be subject to review by the City.

Impact HYD-2: Water Quality Impacts as a Result of Construction-Related Hazardous Materials (Less than Significant with Mitigation)

Construction equipment and activities associated with the proposed project would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, solvents, and paints, also could pose a threat to water quality. While water quality at the project site may currently be affected by contaminants in agricultural runoff, project construction would represent a different type of potential contaminant release associated with construction-related hazardous materials.

Upon project completion, vehicles would release contaminants onto impervious surfaces where they would accumulate until the first storm event. During this initial storm event, the concentrated pollutants would be washed into stormwater drainage systems. Anticipated runoff contaminants associated with the proposed project include sediment, pesticides, oil and grease, metals, bacteria, and trash. Implementation of Mitigation Measure HYD-2 would reduce this impact to a less-then significant level.

Leaks or spills of the construction-related materials described above, if not contained, would be considered a potentially significant impact on groundwater and surface water quality. Implementation of Mitigation Measure HYD-2 would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-2: Implement a Spill Prevention and Control Program

In compliance with the NPDES General Construction Permit, the project proponent will develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum-based substances during construction activities.

The spill prevention and control program must undergo City review and receive City approval prior to the onset of construction activities. The City will inspect the construction area routinely to verify that the measures specified in the spill prevention and control program are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that:

- violates applicable water quality standards,
- causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or

- causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

Impact HYD-3: Water Quality Impacts from Construction below the Water Table (Less than Significant with Mitigation)

Because of the presence of shallow groundwater in the vicinity of the project site (approximately 10 to 20 feet below ground surface), trenching and excavation activities associated with project construction could expose the water table, immediately and directly exposing groundwater to potential contaminants. Similarly, if construction is initiated in an area with direct contact to surface water, then the potential for contaminants to enter the surface water system increases. The discharge of construction-related dewatering effluent also could result in the release of contaminants to surface water. Primary construction-related hazardous materials that could be discharged include oil and grease and construction-related hazardous materials. In addition, short-term water quality impacts are possible, such as local changes in turbidity and possibly changes in dissolved oxygen. This impact would be significant, but implementation of Mitigation Measure HYD-3, as applicable, would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-3: Implement Provisions for Dewatering

Dewatering effluent will be discharged to the SSJID drainage system and will be subject to the SSJID–City of Manteca storm drainage agreement (Environmental Science Associates 1999). Before discharging any substance that could reach surface waters, the project proponent will obtain an NPDES permit and waste discharge requirements from the Central Valley RWQCB. Depending on the volume and characteristics of the discharge, it may be covered under the RWQCB's General Construction Permit or General Dewatering Permit. As part of the permit, the contractors will design and implement measures as necessary to meet the discharge limits identified in the relevant permit. As a performance standard, these measures will be selected to achieve the maximum sediment removal and represent the best available technology (BAT) that is economically achievable. Implemented measures may include the retention of dewatering effluent until particulate matter has settled before it is discharged, the use of infiltration areas, and other BMPs. The final selection of water quality control measures will be subject to review by the City.

The City will verify that compliance with the appropriate NPDES permit has been achieved before allowing dewatering activities to begin. The City or its agent will perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. The City will notify the contractors

immediately if there is a noncompliance issue and will require compliance.

Impact HYD-4: Change in Drainage Patterns and Surface Runoff (Less than Significant with Mitigation)

The proposed project, when complete, would result in new impervious surfaces and thus an incremental reduction in the amount of natural soil surfaces available for the infiltration of rainfall and runoff, potentially generating additional runoff during storm events. Additional runoff can contribute to the flood potential of natural stream channels, accelerate soil erosion and stream channel scour, and provide a more lucrative means of transport for pollutants to enter waterways.

Most of the project site currently contains irrigated agriculture or open space with pervious surfaces. Soils on the project site are generally colluvial and alluvial. Vacant land and open space are generally more permeable than impervious surfaces (such as rooftops and paved areas). Impervious surfaces resulting from the proposed project would prevent infiltration of precipitation, causing ponding and/or run off. Thus, the proposed project would result in a change in drainage patterns and increased runoff.

As described in Chapter 2, "Project Description," the proposed project includes onsite drainage facilities to convey stormwater to an onsite detention basin, and an underground pipe to convey stormwater to the existing SSJID Storm Drain Conveyance System.

Prior to the approval of any final drainage plans, detailed drainage/hydrological studies would be required to address onsite drainage conditions and increased runoff flows associated with proposed land uses on a subdivision-level basis. The master drainage plan would be designed in accordance with City and other applicable flood-control design criteria and subject to prior City review and approval.

Drainage facilities within public road rights-of-way and drainage easements would be maintained by the City. The proposed onsite detention basin would also contribute to the management of increased runoff flows that would result from development. Implementation of Mitigation Measure HYD-4 would reduce potential impacts resulting from changes in drainage patterns and increased runoff from the proposed project to a less-than-significant level.

Mitigation Measure HYD-4: Prepare a Master Drainage Plan
Prior to the commencement of construction, the project proponent will develop and implement a master drainage plan, subject to prior City review and approval. This plan will address the following requirements:

- refined calculations of predevelopment runoff conditions and post-development runoff scenarios, using appropriate engineering methods, to evaluate potential changes to runoff through specific design criteria and account for increased surface runoff;

- a refined assessment of existing drainage facilities on the project site and an inventory of necessary upgrades, replacements, redesigns, and rehabilitation;
- a proposed maintenance program for the onsite drainage system;
- phasing standards for drainage systems to be installed on a project-/parcel-specific basis; and
- payment of fair share cost to construct FCOC downstream improvements identified in the Storm Drain Master Plan, unless such items are included in the PFIP Storm Drainage fee, in which case payment of the PFIP is mitigation.

Drainage systems, including any possible detention basin(s), will be designed in accordance with the City's and other applicable flood-control design criteria. As a performance standard, measures to be implemented from the master drainage plan will provide for no net increase in peak stormwater discharge relative to current conditions, ensure that 100-year flooding and its potential impacts are maintained at or below current levels, and ensure that people and structures are not exposed to additional flood risk.

Prior to issuing a grading permit, the City will require the project proponent to demonstrate that the portion of the project site subject to the grading permit is consistent with the recommendations and conclusions of the master drainage plan and to implement the measures identified in the plan.

Impact HYD-5: Increased Amounts of Surface Runoff and Associated Impacts on Water Quality and Drainage Facilities during Operation (Less than Significant with Mitigation)

The project facilities (e.g., homes, paved driveways, and roads) would involve a substantial amount of new impervious surface, which could increase the amount of surface runoff as well as convey non-point-source contaminants to surface waters via the City's municipal storm drains during storm events. Contaminated runoff could flow into Walthall Slough, French Camp Slough, or ultimately to the San Joaquin River and could degrade the water quality of those water bodies. Additionally, runoff could contribute to the flood potential of natural stream channels and accelerate soil erosion and stream channel scour.

During the dry season, vehicles and other urban activities would release contaminants onto the impervious surfaces, where they would accumulate until the first storm event. During this initial storm event, the concentrated pollutants would be transported via runoff to stormwater drainage systems. Anticipated runoff contaminants associated with the proposed project include sediment, pesticides, oil and grease, nutrients, metals, bacteria, and trash. It bears noting

that some of these contaminants may be expected in the existing agricultural runoff from the project site.

This impact is considered potentially significant. However, the proposed project would implement the requirements of the Storm Drain Master Plan (West Yost and Associates 2006), which would include BMPs to maximize stormwater quality and would be consistent with the City's General Permit Number CA000004, Water Quality Order No. 2003-005-DWG 9 (West Yost and Associates 2006). Implementation of Mitigation Measure HYD-5 and its BMPs would reduce the impact to a less-than-significant level.

Mitigation Measure HYD-5: Implement Best Management Practices to Maximize Stormwater Quality

To reduce or eliminate water quality effects from polluted runoff from the proposed project, the project proponent will implement multiple BMPs in areas where runoff could drain to storm drainage systems or surface waters. The BMPs may include a combination of source control, structural elements, and treatment systems to ensure compliance with the applicable CWA regulations, including the following.

- Dry detention basins will be created and designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sedimentation, excessive vegetation, and debris that may clog basin inlets and outlets.
- Physical devices will be placed at outlets of pipes and channels to reduce the velocity or the energy of exiting water. Outlet protection helps to prevent scour and minimize the potential for downstream erosion by reducing the velocity or energy of concentrated stormwater flows.

The City will select a combination of BMPs that is expected to remove contaminants from stormwater discharges. The final selection and design of BMPs will provide maximum contaminant removal, represent the BAT that is economically achievable, and explicitly identify the expected level of effectiveness at contaminant removal.

The City will conduct inspections following construction to ensure that all identified BMPs have been properly installed. The project will adopt a regular maintenance and monitoring schedule to ensure that these BMPs function properly during project operations. If necessary, the City will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

Impact HYD-6: Decrease in Groundwater Recharge (Less than Significant)

The proposed project would involve an increase in impervious surfaces (e.g., roads, driveways, and homes), which would reduce the infiltration of groundwater to the underlying aquifer on the project site. However, the project site constitutes less than 1% of the total Eastern San Joaquin Subbasin surface area and would not significantly interfere with the overall recharge of the subbasin or result in a cumulatively significant impact. Some deep percolation of applied irrigation water to groundwater is thought to occur; however, the City General Plan does not identify any notable groundwater recharge areas on or near the project site. The majority of runoff from the project site would drain to local drainage facilities and the San Joaquin River, which are where the majority of recharge to the subbasin occurs. Therefore, this impact is considered less than significant.

Impact HYD-7: Substantial Depletion of Groundwater Supplies (Less than Significant)

Groundwater is a significant source of potable water supply for Manteca, and the proposed project is anticipated to use groundwater as a water supply. The Draft EIR for the 2005 Water Master Plan recognized the severe state of overdraft of the underlying aquifer basin described above, under "Environmental Setting" (Jones & Stokes 2006). However, the 2005 Water Master Plan includes implementation of a conjunctive-use program where treated surface water would be used to help offset the groundwater overdraft in the area. The program involves a reduction in groundwater pumping from the current 2.4 afa per year to 1 afa per year, which is equal to the identified sustained yield of the aquifer (Jones & Stokes 2006; Kennedy/Jenks Consultants 2005). Therefore, the proposed project would not cause a substantial depletion of groundwater supplies. This is considered a less-than-significant impact; no mitigation is required.

Impact HYD-8: Insufficiency of Water Supply (Less than Significant with Mitigation)

The City prepared and adopted a WSA for the proposed project on March 3, 2008 (City of Manteca 2008b) (Appendix H—Part 1). The WSA projected peak-hour water demand for the proposed project to be approximately 1,314 gallons per minute (gpm) or 658 afa per year (City of Manteca 2008b). The proposed project would receive its water supply from the City, which participates in a conjunctive use program, using groundwater and surface water from the SSJID, through the South County Surface Water Supply Project, as sources. The WSA concluded that existing water supply is insufficient to meet the project's demand, which will require the construction of a new well and expansion of the water distribution system:

> To meet the additional water demand of the Evans Estates and Pillsbury Estates developments requires the addition of a groundwater well and expansion of the water distribution system. Improvements for the groundwater well may include treatment for arsenic or other contaminants. Specific treatment requirements can be determined upon drilling of a test well. Water distribution system improvements required for the developments will include the extension of existing water lines to the development. The specific water distribution system can only be determined when tentative maps are submitted for approval.
>
> The 2005 Water Master Plan includes the construction of 11 new wells in its capital improvement plan. These wells provide water for future developments. Well 26 will be constructed the future. Well 26, which will be constructed in the future includes the construction of a 1-million gallon storage tank and 3,000 gallon per minute booster pump. The storage tank and booster pump station will be constructed before Well 26 and will provide peak hour capacity necessary for the Machado Estates and Manteca Community. A portion of the storage tank and booster pump capacity will provide water to the Evans Estates and Pillsbury Estates. The City of Manteca will limit groundwater extraction to the safe aquifer yield of 1 acre ft per acre per year by the use of surface water from the South County Water Supply Project.
>
> The developers are required to fund construction of new wells and other water distribution system improvements to provide water to their development. The wells and water distribution system become part of the City water system. Anticipated groundwater requirements by 2027 are 13,790 acre-feet per year. Existing wells and new wells constructed to support future growth will provide the required amount of groundwater.

Although the WSA states that Well 26 may meet some of the proposed project's water supply needs, only 402 gpm would be available because Well 26 water has been allocated to other projects, including Sundance/Oleander Developments, Machado Estates, Silva Estates, and the Manteca community. This would eliminate any available peak-hour supply for the proposed project. For this reason, the project would result in a significant impact related to water supply.

On January 6, 2009, the City prepared a memorandum to further address water supply for the proposed project and to develop alternative methods of providing it adequate water supply (City of Manteca 2009) (Appendix H—Part 2). Well 26 is anticipated to be funded by the Sundance/Oleander Developments as part of its development agreement with the City (City of Manteca 2009). However, the funding requirement for Well 26 has been delayed until the year 2012 or the construction of 300 Sundance/Oleander dwelling units according to its development agreement (City of Manteca 2009).

Based on the WSA and the January 6, 2009, memorandum, the Mitigation Measure HYD-8 was developed to ensure that specific sources of water supply (i.e., the Well 26 storage tank and booster pump station or a new onsite well to be constructed on the project site) are constructed and operational prior to issuance of any building permit for any lot on the project site. Implementation of

Mitigation Measure HYD-8 would reduce the potential impact of insufficient water supply to a less-than-significant level.

The new well identified in Mitigation Measure HYD-8 would be located in one of the park/stormwater retention basin sites described as part of the proposed project. As described in Chapter 2, "Project Description," the Evans Estates site would include a 7.19-acre park/basin and the Pillsbury Estates site would include a 5-acre park/basin. The new well site would require a minimum area of 10,000 square feet (or approximately 0.25 acre) (City of Manteca 2009). The project site would provide sufficient room for the well and any required water treatment. This impact remains less than significant, with the implementation of Mitigation Measure HYD-8.

Mitigation Measure HYD-8: Impose Condition Requiring Water Supply Improvements Tied to Number of Building Permits

The following will be made a condition of approval of the Tentative Maps for the proposed project:

> Per the water supply assessment approved by the City Council on March 3, 2008, if the Well 26 storage tank and booster pump station are constructed and operational, up to 402 gpm of water supply would be available for these subdivisions. As such, if the storage tank and booster pump station are constructed, up to 263 lots may be constructed within the subdivisions. Prior to the issuance of the building permit for the 264th lot, an additional well shall be constructed onsite within the subdivision to supply the additional 912 gpm of water needed for a total water supply of 1314 gpm needed for the 861 lots. However, if the Well 26 storage tank and booster pump station are not constructed and operational, no building permit for any lot within the subdivisions may be issued until such time as a well is constructed onsite within the subdivision to supply the entire 1314 gpm required by the 861 lots, or an alternative water supply is identified and the required environmental screening is conducted.

Impact HYD-9: Impacts on Groundwater and Surface Water from Infrastructure Failure (Less than Significant)

The proposed project would include the installation of infrastructure such as water supply and wastewater pipelines. The possibility of a pipeline rupturing because of exceedances of pipeline capacity, improper design, installation, maintenance, seismic activity, or other catastrophic events could pose a temporary negative impact on water quality resulting from increased erosion and sediment, as well as discharge of any contaminants contained in the water released from the pipeline (e.g., sewage from influent pipelines). However, the infrastructure system(s) would be designed and engineered with sufficient capacity to accommodate anticipated peak flows, minimizing the potential for upset. In addition, infrastructure would be designed to relevant seismic and other standards to minimize the potential for upset from seismic activity or other geologic hazards. Because all facilities would be adequately sized, and designed

and constructed to current standards that are considered adequately protective (i.e., the Uniform Building Code), including standards related to seismic safety and geologic hazards, these impacts are considered less than significant. No mitigation is required.

Impact HYD-10: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies (Less than Significant)

Surface water runoff from the proposed project ultimately could be discharged into the San Joaquin River, which is 303(d)-listed as impaired for boron, DDT, EC, toxaphene, mercury, and Group A pesticides. This project runoff could further contribute to listed impairments, which the river has no remaining assimilative capacity to accommodate, irrespective of concentration.

Sources of these contaminants include lawn runoff, rooftops, and agricultural runoff. As such, existing agricultural activities at the project site could be contributing to the listed impairments. Once the proposed project is implemented, the concentrations of these contaminants are expected to be relatively low because DDT and several other Group A pesticides are no longer commercially available. In addition, all drainage from the proposed project would be captured in a detention basin, which would treat the runoff and reduce the potential for such contaminants to reach the San Joaquin River. As a result, this impact is considered less than significant. No mitigation is required.

Impact HYD-11: Impacts on Flood Flows from Structures in 100-Year Floodplain or Impacts on Housing from Placement in a 100-Year Floodplain (Less than Significant)

Because the project site is not located in the 100-year floodplain, this impact is considered less-than-significant. No mitigation is required.

Impact HYD-12: Flood Hazards associated with Levee or Dam Failure (Less than Significant)

Flooding as a result of the failure of one or more of the San Joaquin or Stanislaus Rivers' dams could result from structural failure or a major and catastrophic seismic event. The most extensive potential of dam inundation would result from the failure of the New Melones Dam. Although the risk of dam failure is remote, it could occur, potentially subjecting project site to inundation. The areas of the City subject to inundation are not specifically defined but generally would coincide with the 100-year floodplain. The project site is located in Zone X (outside of the 100-year floodplain) (Figure 9-1).

Dam failure can occur as a result of an earthquake, structural instability, or intense rain in excess of design capacity. Section 8589.5 of the California Government Code requires local jurisdictions to adopt emergency procedures for the evacuation of populated inundation areas identified by dam owners.

The San Joaquin County Office of Emergency Services has prepared the *Dam Failure Plan*, which includes a description of local dams, the predicted pattern/direction of floodwaters, the responsibilities of local jurisdictions, evacuation plans, and designated city evacuation routes. Because of the relatively small potential for such failure, and the existing emergency evacuation procedures, this impact is less than significant. No mitigation is required.

Chapter 10
Noise and Vibration

Introduction

This chapter addresses noise impacts due to the construction of and added vehicle traffic associated with the proposed Evans Estates–Pillsbury Estates Project (proposed project). It includes a discussion of existing conditions; a summary of local policies and regulations related to noise issues; and an analysis of direct, indirect, and cumulative environmental impacts of the proposed project. Where significant impacts are identified, mitigation measures are identified, if any are feasible.

The key sources of data and information used in the preparation of this section appear below.

- City of Manteca Noise Ordinance, Title 17, Chapter 13 of the City Code
- *City of Manteca General Plan 2023* Noise Element (City of Manteca 2003)
- Roadway and intersection data provided by Fehr & Peers (Breiland pers. comm.)

Noise Terminology

The following is a brief background discussion of noise terminology.

- **Sound.** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound. A sound level measurement in decibels describes the logarithmic ratio of a measured sound pressure level to a reference sound pressure level of 20 micropascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level that approximates the frequency response of the human ear.

- **Sound Level Percentiles (L_n).** The sound level exceeded a certain percentage of time during a specified interval, where the subscript "n" is the percentile value. For example, L_{90} is the sound level exceeded 90% of the time, and L_{10} is the sound level exceeded 10% of the time.
- **Maximum and Minimum Sound Levels (L_{max} and L_{min}).** The maximum or minimum sound level measured during a specified interval.
- **Equivalent Sound Level (L_{eq}).** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The duration of the measurement is commonly indicated in the subscript; for example, a 1-hour L_{eq} sound level would be indicated as dBA $L_{eq,1h}$.
- **Day-Night Level (L_{DN}).** The energy average of A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels occurring between 10:00 p.m. and 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** Similar to L_{DN}, CNEL is the energy average of A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels occurring between 10:00 p.m. and 7:00 a.m. In addition, a 5-dB penalty is applied to sound levels during the evening hours of 7:00 p.m. to 10:00 p.m.
- **Noise-Sensitive Land Uses.** Noise-sensitive land uses are generally defined as locations where people reside or where the presence of noise could adversely affect the use of the land. Typical sensitive receptors include residents, school children, hospital patients, and the elderly.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000 hertz [Hz]to 8,000 Hz) range. However, it is widely accepted that people can begin to detect sound level changes of 3 dB for typical noisy environments. Further, a 10-dB increase is generally perceived as a doubling of loudness. Therefore, doubling sound energy (e.g., doubling the volume of traffic on a highway) would generally be perceived as a detectable, but not substantial increase in sound level.

Environmental Setting

This section discusses the existing noise environment in the project area. It then describes the regulations related to noise that would apply to the proposed project.

Existing Noise Environment

The study area for the purposes this noise analysis includes residential and agricultural land uses along the roadways that approach the project site. Noise-

sensitive land uses in the study area that could be affected by the proposed project include residential subdivisions north of the project site and other scattered single-family residences. The dominant noise source is traffic on primary roadways such as East Woodward Avenue and South Main Street.

The existing noise environment in the study area was determined through noise monitoring and traffic noise modeling, described below.

Noise Monitoring

ICF Jones & Stokes conducted short-term noise monitoring (20-minute durations) at three locations along the perimeter of the project site (ST-1 through ST-3 on Figure 10-1) to characterize the existing ambient noise levels at noise-sensitive land uses in the study area. Measurements were taken on February 26, 2008, using a Larson-Davis Model 812 Precision Type 1 sound level meter (serial number 0239). The meter was positioned on a tripod at a microphone height of 1.5 meters (5 feet) above the ground. Sound levels and audible noise sources were recorded on field data sheets; local traffic was the dominant noise source. Temperature, wind speed, and humidity were recorded manually using a Kestrel 3000 portable weather station: skies were partly cloudy; wind speeds were typically in the range of 0 to 3 miles per hour (mph); and temperatures were in the range of 68 to 70° Fahrenheit, with relative humidity typically in the range of 75 to 85%. Table 10-1 summarizes the short-term measurement results.

Table 10-1. Summary of Short-Term Noise Monitoring (February 26, 2008)

Receivers	Location	Time	Duration (minutes)	Measured Sound Level dBA L_{eq}
ST-1	South end of Buena Vista Dr. (northern edge of the project site)	11:29 a.m.	20	44.0
ST-2	S. Manteca Rd. (western edge of the project site)	12:05 p.m.	20	62.3
ST-3	Pillsbury Rd. (eastern edge of project site)	12:43 p.m.	20	43.4

Traffic Noise Modeling

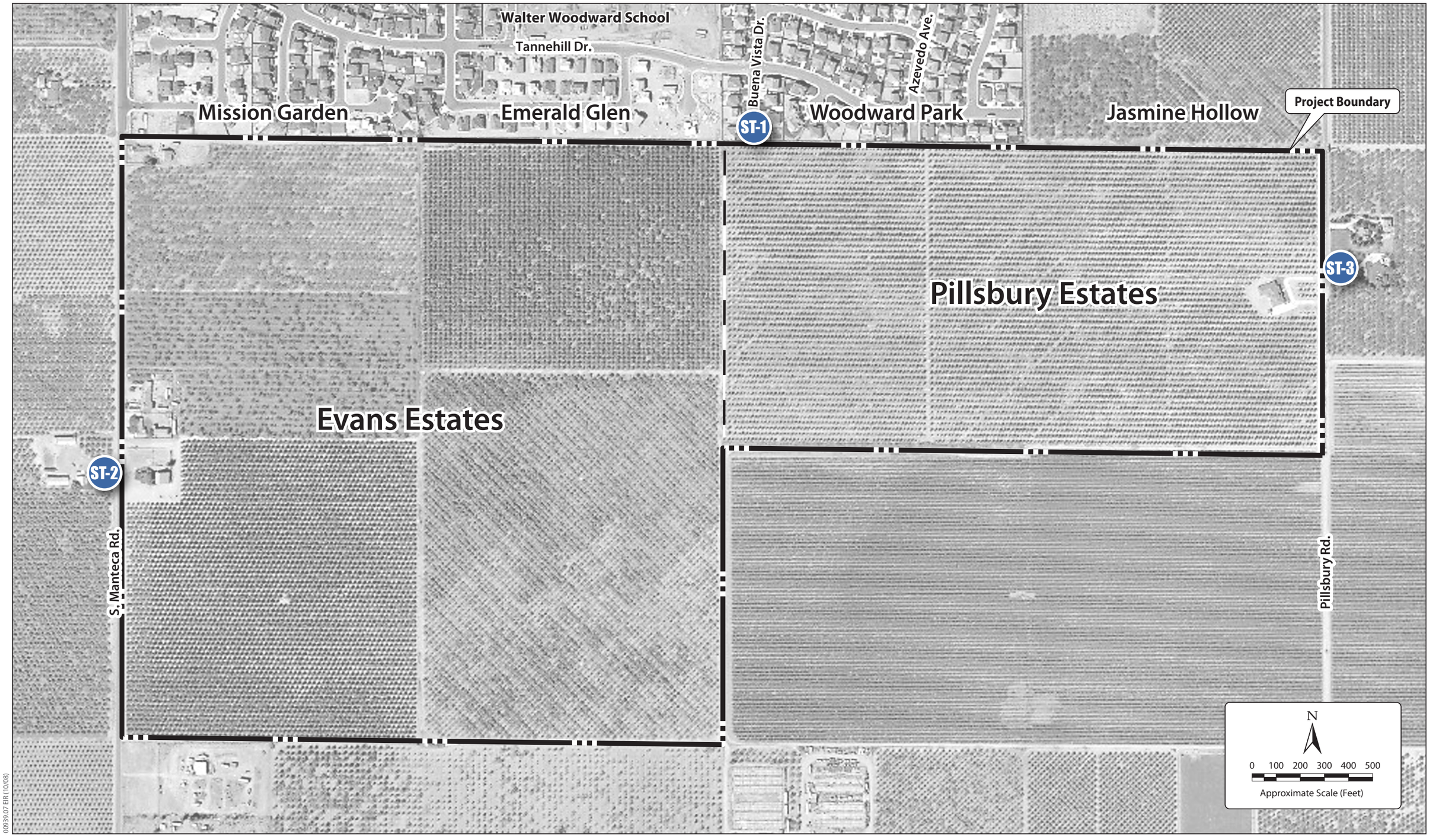
Existing traffic noise levels in the study area were calculated using the Federal Highway Administration Traffic Noise Model Version 2.5 (TNM) and existing traffic volumes provided by Fehr & Peers (Breiland pers. comm.). Table 10-2 summarizes the traffic noise modeling results based on existing traffic conditions. As shown in the table, the existing traffic noise level at areas adjacent to Airport Way and State Route (SR) 120 currently exceed the City's noise compatibility threshold—or maximum allowable noise exposure—of 60 dBA L_{DN} at residential locations (Table 10-3).

Table 10-2. Traffic Noise Modeling Results, Existing Conditions

Roadway	Segment	Existing Land Use Description	Existing L_{DN}
S. Main St.	Atherton Dr. to E. Woodward Ave.	Residential	59
S. Manteca Rd.	E. Woodward Ave. to N. Project Rd.	Residential	56
S. Manteca Rd.	N. Project Rd. and S. Project Rd.	Residential	53
Union Rd.	SR 120 to Atherton Dr.	Residential	57
Union Rd.	Atherton Dr. to E. Woodward Ave.	Residential	57
Airport Way	Daniels St. to SR 120	Residential	**61**
Airport Way	SR 120 to Atherton Dr.	Residential	58
Airport Way	Atherton Dr. to E. Woodward Ave.	Residential	56
E. Woodward Ave.	Airport Way to Union Rd.	Residential	53
E. Woodward Ave.	Union Rd. to Main St.	Residential	56
E. Woodward Ave.	S. Main St. to Van Ryn Ave.	Residential	58
E. Woodward Ave.	Van Ryn Ave. to Pillsbury Rd.	Residential	55
E. Woodward Ave.	Pillsbury Rd. to Atherton Dr.	Residential	56
E. Woodward Ave.	Atherton Dr. to Moffat Blvd.	Residential	56
Moffat Blvd.	E. Woodward Ave. to SR 99 SB Off-ramp	Residential	59
Moffat Blvd.	SR 99 SB off-ramp to Austin Rd.	Residential	59
SR 120	West of Main St.	Residential	**62**
SR 120	East of Main St.	Residential	**62**

SB = southbound

Bold denotes exceedance of City threshold.



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Figure 10-1
Noise Measurement Points

Table 10-3. City Noise Compatibility Thresholds from Mobile/Transportation Noise Sources[a]

	Threshold		
	Outdoor Activity Areas[c]	Interior Spaces	
Land Use[b]	L_{DN}, dBA	L_{DN}, dBA	L_{eq}, dBA[d]
Residential	60[e]	45	–
Transient lodging	60[e]	45	–
Hospitals, nursing homes	60[e]	45	–
Theaters, auditoriums, music halls	–	–	35
Churches, music halls	60[e]	–	40
Office buildings	65	–	45
Schools, libraries, museums	–	–	45
Playgrounds, neighborhood parks	70	–	–

Source: City of Manteca 2003.

[a] Noise from new transportation projects, such as rail or public transit routes, may be allowed to exceed these standards if the City Council finds that there are special overriding circumstances.

[b] Where a proposed use is not specifically listed on the table, the use will comply with the noise compatibility threshold for the nearest similar use as determined by the City.

[c] 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 multifamily developments. Outdoor activity areas for non-residential developments are considered to be those common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities. Where the location of outdoor activity areas is unknown, the exterior noise level standard will be applied to the property line of the receiving land use.

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

[e] 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 dB L_{DN} will be allowed.

Regulatory Setting

This section discusses local regulations and standards concerning noise. The City regulates the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses through the Noise Element of the *City of Manteca General Plan 2023* (City General Plan) and through the City Noise Ordinance.

City of Manteca General Plan Noise Element

The City General Plan is a document required by state law that serves as the City's "blueprint" for land use and development. The City General Plan provides an overall framework for development in Manteca and protection of its natural

and cultural resources by providing a comprehensive, long-term document that provides details for the physical development of the city, sets out policies, and identifies ways to implement the policies. The Noise Element of the City General Plan contains planning guidelines relating to noise and identifies goals and policies to support achievement of those goals. Noise Element guidelines relate primarily to land use compatibility with noise sources that are not regulated at the local level, such as traffic, aircraft, and trains.

The City's Noise Element establishes policies and regulations concerning the generation and control of noise that could adversely affect citizens and noise-sensitive land uses. The City has established performance standards for exposure from mobile/transportation and stationary noise sources. The City's standards for mobile/transportation noise sources are indicated in Table 10-3, while Table 10-4 summarizes the City's standards for stationary noise sources. The standards indicated in Table 10-4 also apply to construction-related noise on adjacent land uses.

Table 10-4. City Performance Standards for Stationary Noise Sources and Construction Noise[a, b]

Noise Level Descriptor	Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10:00 p.m. to 7:00 a.m.
Hourly L_{eq}, dB	50	45
Maximum level, dB	70	65

Source: City of Manteca 2003.

[a] Each of the noise levels specified above should be lowered by 5 dB for simple noise tones, noises consisting primarily of speed 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.

[b] 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.

The City's Noise Element further stipulates that new development in residential areas with noise levels in excess of 60 dBA L_{DN} must incorporate mitigation measures to reduce noise levels below 60 dBA L_{DN}. In addition, when determining impacts under the California Environmental Quality Act (CEQA), the City has identified a substantial noise increase as being a 10-dB or greater increase in the ambient noise level. In addition, an increase in noise levels between 5 and 10 dB may also be substantial. For increases in noise between 5 and 10 dB, the following factors should be considered when determining whether a substantial noise increase would occur:

- the resulting noise levels;
- 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; and

- prior CEQA determinations by other agencies specific to the program.

City of Manteca Noise Ordinance

The City's noise ordinance, part of the City's zoning ordinance, is the primary noise enforcement tool for noise generated by locally regulated noise sources, such as mechanical equipment and construction activity.

The City's noise ordinance states that noise levels may not exceed the City's maximum permissible sound pressure levels (Table 10-5) at the lot line of any establishment or use for all districts, with the exception of M-1 and M-2 districts, which do not exist on the project site.

Table 10-5. City of Manteca Maximum Permissible Sound Pressure Levels

Receiving Land Use Category	Time Period	Maximum Exterior Noise Level (dBA)
Single and limited multiple family	10:00 p.m.–7:00 a.m. 7:00 a.m.–10:00 p.m.	50 60
Multiple family, public institutional, and neighborhood commercial	10:00 p.m.–7:00 a.m. 7:00 a.m.–10:00 p.m.	55 60
Medium and heavy commercial	10:00 p.m.–7:00 a.m. 7:00 a.m.–10:00 p.m.	60 65
Light industrial	Anytime	70
Heavy industrial	Anytime	75

Source: City of Manteca Municipal Code.

Notes: The following corrections are applicable:*

1. Daytime operation only (7:00 a.m. – 7:00 p.m.): +5 decibels
2. Noise source operates less than:
   20% of any 1-hour period: +5 decibels
   5% of any 1-hour period: +10 decibels
   1% of any 1-hour period: +15 decibels
3. Noise of impulsive character (hammering, etc.): -5 decibels
4. Noise rising or falling in pitch or volume (e.g., hum or screech): -5 decibels

*Apply only one of these corrections.

Further, the City's Municipal Code also establishes limits for groundborne vibration. The ordinance requires that no vibration will be produced that is transmitted through the ground and is discernible without the aid of instruments at the lot line of any establishment or use for all districts, except M-1 and M-2 districts.

City of Manteca Engineering Standards and Specifications

The City's Standard Plans and Specifications require that sound walls be constructed according to certain specifications, including, but not limited to, height, materials, and location (City of Manteca 2004). The City's Standard Plans and Specifications specify minimum height requirements for sound walls (7 feet measured from the high-ground side of the wall); setback requirements of sound walls from streets; streetscape requirements; and approval requirements for the landscape plan and irrigation system (City of Manteca 2004).

Impact Analysis

Approach and Methodology

CEQA requires the significance of noise impacts to be determined for proposed projects. The process of assessing the significance of noise impacts associated with a proposed project starts by establishing thresholds at which significant impacts are considered to occur. Next, noise levels associated with project-related activities are predicted and compared to the significance thresholds. A significant impact occurs when a predicted noise level exceeds a threshold.

Traffic Noise

Noise from traffic on roadways in the project area has been evaluated under the following conditions:

- existing conditions,
- cumulative no-project conditions, and
- cumulative with-project conditions.

Federal Highway Administration Traffic Noise Model Version 2.5 (TNM) was used to calculate future traffic noise levels using traffic information provided by Fehr & Peers (Breiland pers. comm.). Noise levels were calculated along roadway segments potentially affected by the proposed project.

Construction Noise and Vibration

Construction noise and vibration impacts were estimated using analysis methods recommended by the Federal Transit Administration (FTA) (Federal Transit Administration 2006). Noise and vibration source levels for various types of construction equipment that may be used during construction were obtained from FTA. Noise and vibration levels as a function of distance were then estimated

for these equipment pieces and compared to the City's noise and vibration thresholds.

Thresholds of Significance

Appendix G of the CEQA Guidelines state that a project would normally have a significant effect on the environment if it would:

- expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies;
- expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- be located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels; or
- be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

The following criteria were used to determine the significance of impacts under CEQA. These criteria are based on the City General Plan Noise Element and the other relevant standards discussed above. For the purposes of this analysis, an impact was considered significant if it would result in any of the following conditions:

- Construction noise would exceed the thresholds indicated in the City General Plan (Table 10-4) between the hours of 7:00 p.m. and 7:00 a.m.
- Vibration levels would exceed the standards specified in the City's noise ordinance.
- Operational noise would exceed the thresholds indicated in the City General Plan (Table 10-3).
- New noise-sensitive land uses would be exposed to noise exceeding 60 dBA L_{DN}.
- Future with-project traffic noise at existing noise-sensitive land uses would increase by 10 dB or more relative to existing conditions.
- Future with-project traffic noise at existing noise-sensitive land uses would increase by 3 dB or more relative to future no-project conditions when the future no-project noise level is 60 dBA L_{DN} or greater.

Impacts and Mitigation Measures

Impact NOI-1: Exposure of Noise-Sensitive Land Uses to Vibration and Noise and During Construction Activities (Less than Significant)

Vibration. Construction activities associated with the proposed project may cause a small amount of groundborne vibration, but the vibration from these activities would be short term. The use of high-impact construction activities such as pile driving is not anticipated. Therefore, there would be no vibration impacts from construction.

Noise. The assessment of potential construction noise levels was based on methodology developed by the FTA (Federal Transit Administration 2006). Table 10-6 summarizes noise levels produced by typical construction equipment expected to be used for the proposed project. Individual types of construction equipment are expected to generate noise levels ranging from 74 to 89 dBA at a distance of 50 feet. The construction noise level at a given receiver depends on the type of construction activity, the noise level generated by that activity, and the distance and shielding between the activity and noise-sensitive receivers.

Table 10-6. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 Feet from Source
Scraper	89
Backhoe	80
Concrete Truck	85
Paver	89
Roller	74
Rough Terrain Forklift	85

Source: Federal Transit Administration 2006.

Potential noise levels resulting from construction of the proposed project were evaluated by summing the noise levels of the three loudest pieces of equipment that would likely operate at the same time (scraper, paver, and concrete truck), and multiplying by a usage factor (percent of time equipment is in operation). The combined noise level is 89 dBA at 50 feet. Table 10-7 shows the estimated sound levels from construction activities as a function of distance, based on calculated point-source attenuation over “soft” (i.e., acoustically absorptive) ground.

Table 10-7. Estimated Sound Levels Generated by Construction of the Proposed Project

Source Data	Maximum Sound Level (dBA)	Utilization Factor	L_{eq} Sound Level (dBA)
Source 1: Scraper - Sound level (dBA) at 50 feet =	89	0.4	85
Source 2: Paver - Sound level (dBA) at 50 feet =	89	0.4	85
Source 3: Concrete Truck - Sound level (dBA) at 50 feet =	85	0.4	81
All Sources Combined - Leq sound level (dBA) at 50 feet =			89

Distance Between Source and Receiver (feet)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated L_{eq} Sound Level (dBA)
50	0	0	89
100	-6	-2	81
200	-12	-4	73
300	-16	-5	68
400	-18	-6	65
500	-20	-6	63
600	-22	-7	61
700	-23	-7	59
800	-24	-7	57
900	-25	-8	56
1000	-26	-8	55
1200	-28	-9	53
1400	-29	-9	51
1600	-30	-9	49
1800	-31	-10	48
2000	-32	-10	47
2500	-34	-10	44
3000	-36	-11	42

Calculations based on Federal Transit Administration 2006.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography, or other barriers that may reduce sound levels further.

Residential land use is located adjacent to the project site, and construction activities are expected to occur within 1,000 feet of noise-sensitive land uses at any given time. The results in Table 10-7 indicate that residences located within about 1,600 feet of an active construction site could be exposed to construction noise in excess of the City's daytime noise standard of 50 dBA and that residences within 2,500 feet of active construction could be exposed to

construction noise in excess of the nighttime standard of 45 dBA. This impact is considered significant because construction noise levels could exceed the City's performance standards between the hours of 7:00 p.m. and 7:00 a.m. Enforcement of the existing City Noise Ordinance will ensure that noise from construction activity during these hours is within the specified noise ordinance limits, reducing this impact to a less-than-significant level.

Impact NOI-2: Exposure of Existing Noise-Sensitive Land Uses on Project Approach Roadways to Increased Traffic Noise (Significant and Unavoidable)

Table 10-8 summarizes the predicted traffic noise levels along roadway segments approaching the project site, where future increases in traffic volumes are expected to result from implementation of the proposed project.

The comparison between cumulative plus-project conditions and existing conditions gives an indication of the cumulative increase in noise associated with the proposed project and background growth. The comparison between cumulative plus-project conditions and cumulative no-project conditions indicates the increase in noise caused directly by the proposed project.

Cumulative sound levels are predicted to increase by as much as 10 dB relative to existing conditions on approach roadways to the project site. Cumulative with-project noise levels are no more than 1 dB greater than cumulative no-project noise levels.

Noise levels along the segment of East Woodward Avenue between Airport Way and Union Road will increase by 10 dB relative to existing conditions. Because noise increases along roadway segments approaching the project site are 10 dB or greater relative to existing conditions, this impact is considered significant.

Because driveway access to existing residences located along East Woodward Avenue must be maintained, construction of soundwalls along these roadways is not considered feasible. This impact is therefore considered significant and unavoidable.

Impact NOI-3: Exposure of Future Noise-Sensitive Land Uses on the Project Site to Traffic Noise (Less than Significant)

The site plan, shown in Figure 11-2 in Chapter 11, "Transportation and Traffic," shows access to the site via two new roadways (North Project Road and South Project Road) connecting to South Manteca Road, and a third access point connecting to the future McKinley Avenue extension, south of the site. The following roadways segments are adjacent to noise-sensitive land uses under the proposed project:

- South Manteca Road between East Woodward Avenue and North Project Road
- South Manteca Road between North Project Road and South Project Road

Table 10-8 summarizes predicted traffic noise levels along these roadways under existing, cumulative no-project, and cumulative with-project conditions. These results indicate that proposed noise-sensitive land uses on the project site along South Manteca Road would be exposed to traffic noise equaling or exceeding the City noise compatibility threshold in outdoor areas of 60 dBA L_{DN}. This would be a significant impact. As previously mentioned, access is also proposed from the new McKinley Avenue Extension from the south side of the Evans Estates site, in addition to the two roadways segments along South Manteca Road. Because the future McKinley Avenue Extension is not a fully funded project in the City's Public Facilities Implementation Plan, it was not included in the traffic analysis for the proposed project; as such, traffic noise levels were not modeled for this roadway segment.

New construction designed to meet current thermal insulation standards would typically provide at least 20 dB of exterior-to-interior noise reduction. Accordingly, interior noise levels are predicted to be below the City's interior noise standard of 45 dBA L_{DN}.

Manteca Municipal Code (Title 16, Subdivisions, Section 16.23.06(C)(1)(j)(i)) requires construction of walls, as approved by the city engineer, where single-family residential lots or parcels are adjacent to arterial roadways,[1] and prohibits those lots from taking access from the arterial. As discussed under "Regulatory Setting," above, the City's Standard Plans and Specifications (i.e., the minimum acceptable standards of design, materials, and methods required to be used in improvement of land divisions and other developments) require that sound walls are constructed according to certain specifications, including, but not limited to, minimum height, materials, and location (City of Manteca 2004).

Compliance with the City's Standard Plans and Specifications and Manteca Municipal Code will require construction of noise barriers around the residential lots on the project site located adjacent to arterial roadways. This will result in maintaining traffic noise levels within the 60-dBA-LDN limits and ensure that this impact is less than significant.

[1] The Manteca Municipal Code defines "arterial" as a street or roadway fed by local and collector streets that provides intra-city circulation and connections to regional roadways and generally carries relatively heavy traffic volumes (Manteca Municipal Code, Section 16.27.030).

Table 10-8. Traffic Noise Modeling Results, Existing and Cumulative Conditions

Roadway	Segment	Existing Land Use Description	Existing L_{DN}	Cumulative No Project dBA L_{DN}	Cumulative With Project dBA L_{DN}	Cumulative With Project minus Existing dB	Cumulative With Project Minus Cumulative No Project dB
S. Main St.	Atherton Dr. to E. Woodward Ave.	Residential	59	63	64	+ 5	+ 1
S. Manteca Rd.	E. Woodward Ave. to N. Project Rd.[a]	Residential	56	57	60	+ 4	+ 3
S. Manteca Rd.	N. Project Rd. and S. Project Rd.[a]	Residential	53	56	58	+ 5	+ 2
Union Rd.	SR 120 to Atherton Dr.	Residential	57	65	65	+ 8	0
Union Rd.	Atherton Dr. to E. Woodward Ave.	Residential	57	63	63	+ 6	0
Airport Way	Daniels St. to SR 120	Residential	61	66	66	+ 5	0
Airport Way	SR 120 to Atherton Dr.	Residential	58	67	67	+ 9	0
Airport Way	Atherton Dr. to E. Woodward Ave.	Residential	56	64	64	+ 8	0
E. Woodward Ave.	Airport Way to Union Rd.	Residential	53	63	63	+ 10	0
E. Woodward Ave.	Union Rd. to Main St.	Residential	56	63	63	+ 7	0
E. Woodward Ave.	Main St. to Van Ryn Ave.	Residential	58	63	64	+ 6	+ 1
E. Woodward Ave.	Van Ryn Ave. to Pillsbury Rd.	Residential	55	60	61	+ 6	+ 1
E. Woodward Ave.	Pillsbury Rd. to Atherton Dr.	Residential	56	59	60	+ 4	+ 1
E. Woodward Ave.	Atherton Dr. to Moffat Blvd.	Residential	56	61	61	+ 5	0
Moffat Blvd.	E. Woodward Ave. to SR 99 SB off-ramp	Residential	59	62	62	+ 3	0
Moffat Blvd.	SR 99 SB off-ramp to Austin Rd.	Residential	59	62	63	+ 4	+ 1
SR 120	West of Main St.	Residential	62	64	64	+ 2	0
SR 120	East of Main St.	Residential	62	64	64	+ 2	0

[a] Roadway segments adjacent to noise-sensitive land uses under the proposed project.

Chapter 11
Transportation and Traffic

Introduction

This chapter presents the results of the transportation impact analysis prepared by Fehr & Peers for the Evans Estates–Pillsbury Estates Project (proposed 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. Figure 11-1 presents the study intersections, and Figure 11-2 presents the tentative project site plans.

Existing and future conditions were evaluated with level of service (LOS) calculations for the key intersections and roadway segments near the project site. Project impacts were determined according to guidelines established by the City of Manteca (City), San Joaquin Council of Governments (SJCOG), and the California Department of Transportation (Caltrans).

In addition to analyzing intersections and roadway segments, existing and future conditions were evaluated for the freeway mainline segments and ramp junctions near the project site. Project impacts were determined according to Caltrans guidelines for freeway facilities.

The operations of study intersections and freeway facilities were evaluated during weekday morning (AM) and evening (PM) 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 eight scenarios.

- **Existing Conditions:** existing volumes obtained from traffic counts.
- **Existing Plus Evans Estates Conditions:** existing volumes plus traffic generated by Evans Estates.
- **Existing Plus Pillsbury Estates Conditions:** existing volumes plus traffic generated by Pillsbury Estates.
- **Existing Plus Both Projects Conditions:** existing volumes plus traffic generated by both Evans Estates and Pillsbury Estates.

- **Cumulative No-Project Conditions:** volumes obtained from a modified version of the SJCOG regional travel demand forecasting (TDF) model under cumulative (year 2025) conditions.
- **Cumulative Plus Evans Estates Conditions:** Scenario 5 traffic volumes plus traffic generated by Evans Estates.
- **Cumulative Plus Pillsbury Estates Conditions:** Scenario 5 traffic volumes plus traffic generated by Pillsbury Estates.
- **Cumulative Plus Both Projects Conditions:** Scenario 5 traffic volumes plus traffic generated by Evans Estates and Pillsbury Estates.

Environmental Setting

This section discusses the federal, state, and local regulations related to transportation and traffic that would apply to the proposed project. Next, it defines the terminology used throughout the report to describe the conditions of the transportation system and the process by which existing conditions were determined. Finally, it describes the existing conditions of the transportation system near the project site, focusing on the roadway, transit, bicycle, and pedestrian systems

Regulatory Setting

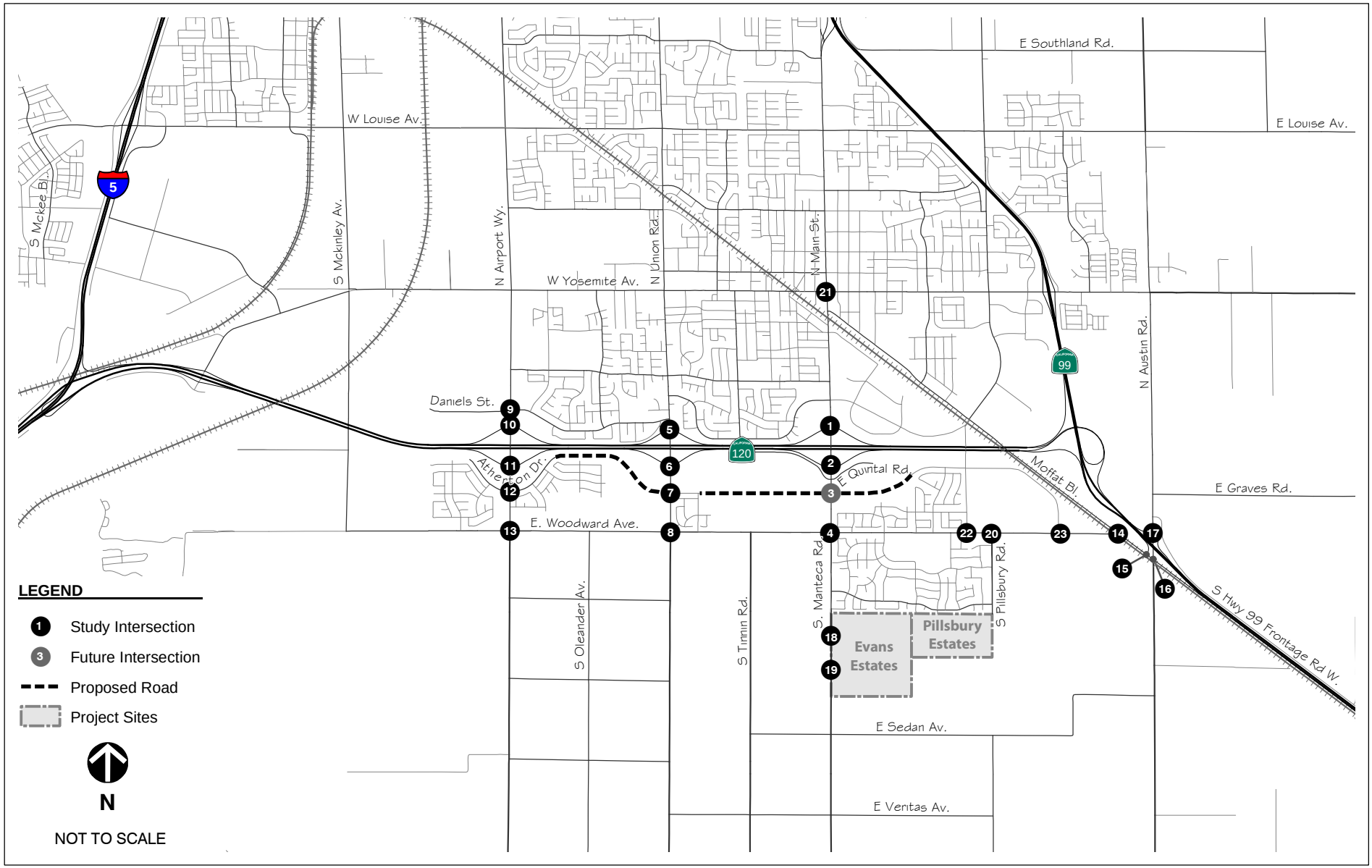
Federal and State

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.

Local

San Joaquin County Regional Transportation Plan

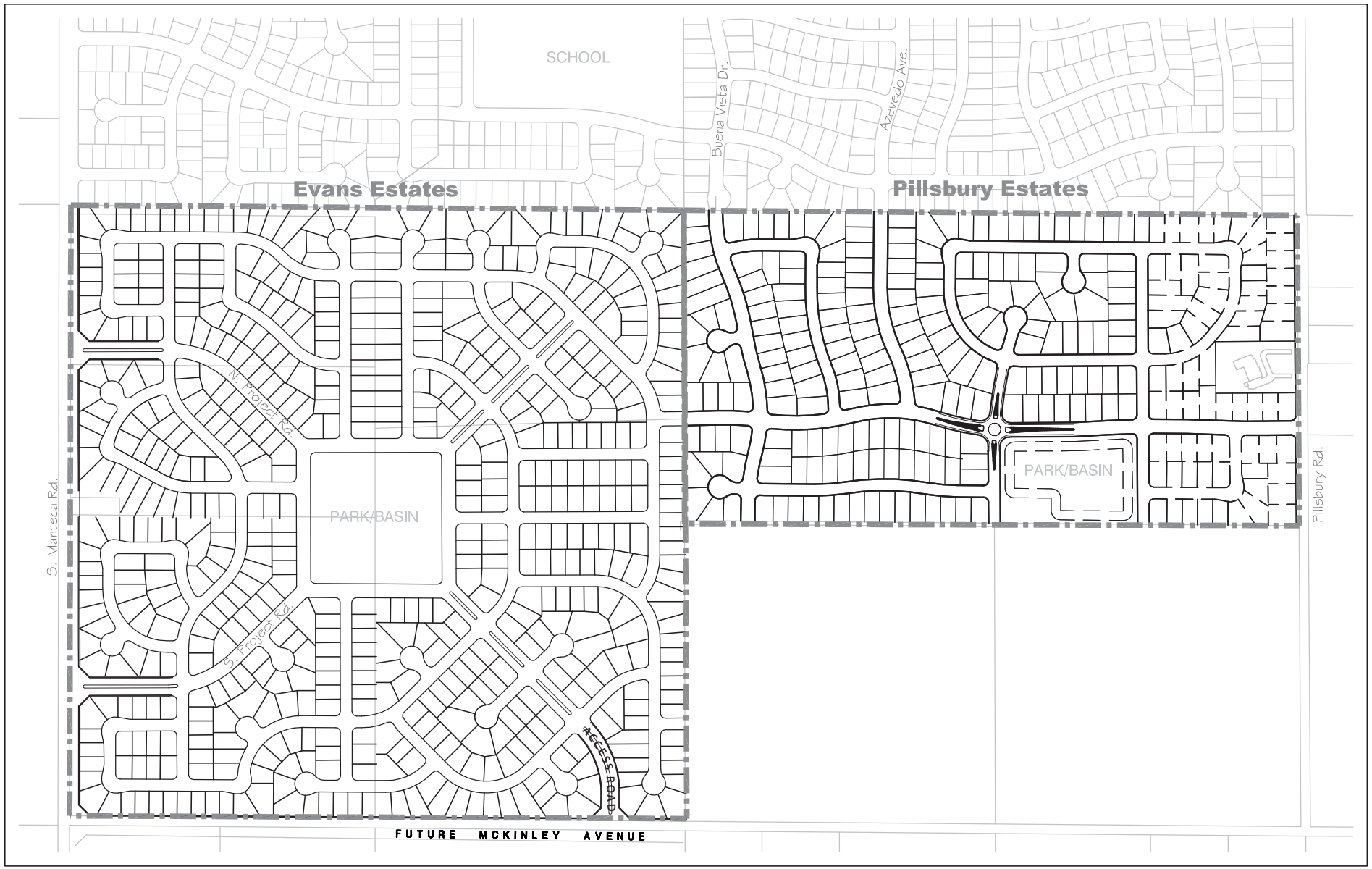
San Joaquin County (County), through the SJCOG, periodically updates the Regional Transportation Plan (RTP), which outlines countywide transportation expenditures based on funding from sources like the federal government, the State of California, and locally collected funds. The current SJCOG RTP (2007b) contains several proposed improvements that would benefit the regional roadway network near the project site. These improvements include widening State Route (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 (I) 5 and SR 99.



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STUDY INTERSECTIONS
FIGURE 11-1



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PROJECT SITE PLAN

FIGURE 11-2

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 below, with their LOS standard:

- SR 120 between Yosemite Avenue and SR 99: LOS F
- Airport Way: LOS D

Note, however, that 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. This fee is collected by the City and passed on to the County.

Measure K

Measure K is a 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, and expanding SR 120 to six lanes between I-5 and SR 99.

City of Manteca General Plan

The *City of Manteca General Plan 2023* (City General Plan) (City of Manteca 2003) includes the following policies related to transportation and circulation that are relevant to this analysis.

Policies: Street System

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.

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:

- 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.
- Where it is difficult or impossible to maintain LOS C because surrounding facilities in other jurisdictions operate at LOS D or worse.
- Where free-flowing roadways or interchange ramps would discourage use of alternate travel modes.
- 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.

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.

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.

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).

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.

Policies: Bikeways and Pedestrian Paths

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.

C-P-35. Route sidewalks so that they connect to major public parking areas, transit stops, and intersections within the bikeway system.

C-P-36. Provide adequate bicycle parking facilities at commercial, business/professional, and light industrial uses.

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* (Fehr & Peers 2003) 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's Public Facilities Implementation Plan (PFIP) (1993) is the implementing document for the City 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 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 revised list of infrastructure projects and a revised fee. It is envisioned that the updated PFIP fee will cover the costs of city roadway and freeway 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 will cover the full cost of constructing all the projects identified in the PFIP project list.

Terminology and Methodology

Level of Service

The operations of roadway facilities are described in terms of 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 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 11-2 summarizes the relationship between delay and LOS for unsignalized intersections.

Table 11-1. Signalized Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression or short cycle lengths.	≤10
B	Operations with low delay occurring with good progression or short cycle lengths.	>10–20
C	Operations with average delays resulting from fair progression or longer cycle lengths. Individual cycle failures begin to appear.	>20–35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Many vehicles stop, and individual cycle failures are noticeable.	>35–55
E	Operations with long delays indicating poor progression, long cycle lengths, or high V/C ratios. Individual cycle failures are frequent. This is considered the limit of acceptable delay.	>55–80
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	>80

Source: Transportation Research Board 2000.

Table 11-2. Stop-Controlled Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay per Vehicle (seconds)
A	Little or no delay	≤10
B	Short traffic delays	>10–15
C	Average traffic delays	>15–25
D	Long traffic delays	>25–35
E	Very long traffic delays	>35–50
F	Extreme traffic delays with intersection capacity exceeded	>50

Source: Transportation Research Board 2000.

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) (California Department of Transportation 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. Generally, even when peak-hour signal warrant is satisfied, the decision to install a signal should not be based solely upon this factor. The City, the County, or Caltrans should regularly

monitor traffic conditions and accident data, and evaluate the full set of warrants in order to prioritize and program intersections for signalization.

Roadway Segments

Roadway segment operations were evaluated using the average daily traffic volume thresholds presented in Table 11-3.

Table 11-3. Daily Traffic Volume Levels of Service

Lanes	Level of Service C Threshold	Level of Service D Threshold	Level of Service E Threshold
2	12,000	14,600	15,600
4	24,400	31,100	32,900
6	36,400	46,800	49,300

Source: LOS D and E thresholds are taken from *City of Manteca General Plan 2023* (City of Manteca 2003); LOS C threshold is based on modified versions of other local jurisdictions' LOS C threshold.

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 11-4.

Table 11-4. Density-Based Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments Level of Service Criteria

Level of Service	Mainline Density[a]	Ramp Junction Density[a]
A	≤11	≤10
B	11–18	10–20
C	18–26	20–28
D	26–35	28–35
E	35–45	>35
F	>45	Demand exceeds capacity.

Source: Transportation Research Board 2000.

[a] Measured in passenger vehicles per mile per lane.

Study Area

This section describes the local roadway facilities, regional freeway system, pedestrian and bicycle facilities, transit service, and traffic operations in the study area.

Roadway System

Figure 11-1 presents the project site and the surrounding local and regional roadway network. I-5, SR 99, and SR 120 provide regional access. The Main Street interchange with SR 120 provides the primary access to the regional freeway network; however, access is also available via the Union Road and Airport Way interchanges with SR 120. The Austin Road interchange provides access to SR 99. Woodward Avenue, Main Street, 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 Airport Way interchange.

SR 99 is major north-south freeway located approximately 2 miles east of the project site. SR 99 provides a connection between all the major cities in the Central Valley, from Sacramento and Stockton in the north, and the cities of Manteca, 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.

South Manteca Road, a north-south, two-lane rural road with a speed limit of 55 miles per hour, is located immediately west of the project site. Immediately north of the project site, the east side of South Manteca Road is built to urban standards, with curb, gutter, and sidewalk. South Manteca Road becomes Main Street, about 0.5 mile north of the project site. Main Street provides access to SR 120 and Downtown Manteca to the north.

Woodward Avenue is an east-west, two-lane roadway located about 0.5 mile north of the project site. It extends from Oakwood Lake in the west to Moffat Boulevard in the east. Between Manteca Road/Main Street and Bridewell Avenue, Woodward Avenue is a four-lane arterial built to City standards. East of Bridewell Avenue, the north side of Woodward Avenue is constructed to City standards, while the south side is rural in character.

Pedestrian and Bicycle System

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals at signalized intersections. The neighborhood immediately north of the project site

has a well-established pedestrian and bicycle system including sidewalks and bike lanes that access parks and schools.

As described above, the sections of Manteca Road and Woodward Avenue north of the project site also have sidewalks on at least one side of the street. The *City of Manteca Bicycle Master Plan* (Fehrs & Peers 2003) shows proposed Class II bike lanes along Manteca Road near the project site.

Immediately adjacent to the project site, all the roads are rural in character and there are no bike lanes or sidewalks. Figure 11-3 shows the existing bicycle facilities.

Transit System

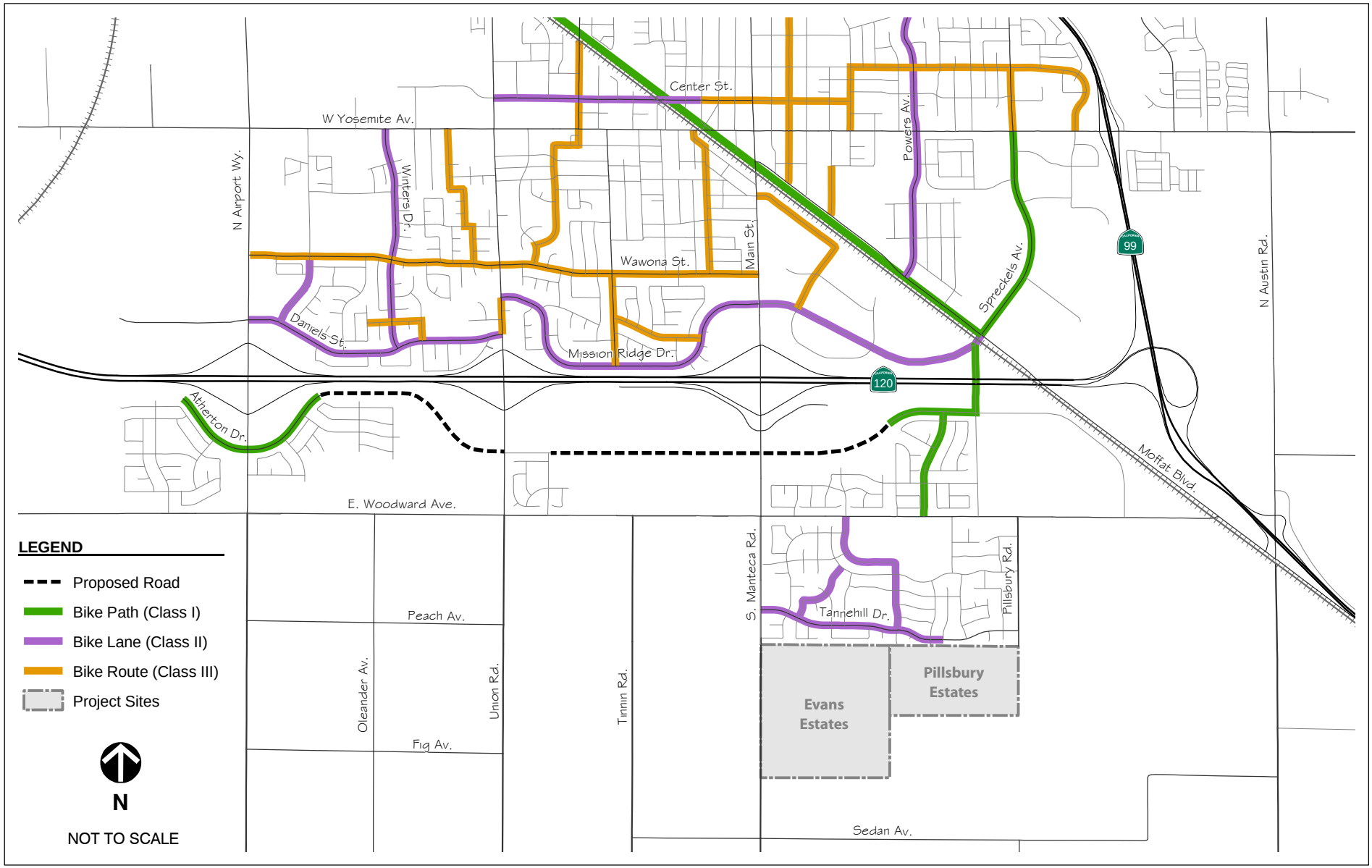
No existing transit facilities serve the project site. However, several transit agencies provide service in Manteca, as described below. These agencies include Manteca Transit, which provides two fixed-route services and a Dial-A-Ride component; the San Joaquin Regional Transit District (SJRTD) with 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. Figure 11-4 shows the existing transit facilities near the project site.

Analysis Locations

The transportation analysis evaluated the operations of the following key intersections, roadway segments, and freeway facilities.

Intersections

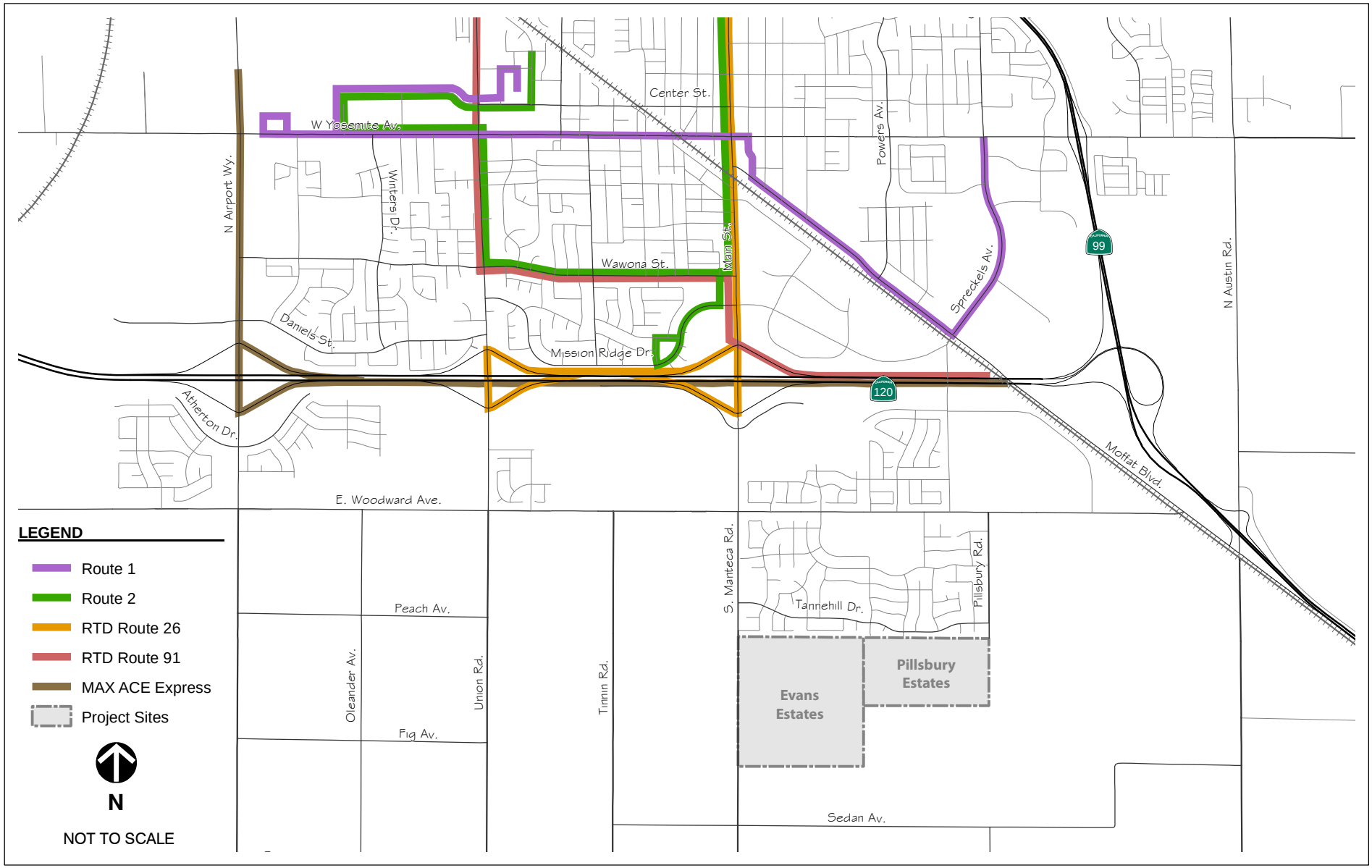
- SR 120 westbound (WB) ramps and Main Street
- SR 120 WB ramps and Main Street
- Atherton Drive and Main Street (future intersection)
- Woodward Avenue and Manteca Road
- SR 120 WB ramps and Union Road
- SR 120 WB ramps and Union Road
- Atherton Drive and Union Road
- Daniels Street and Airport Way
- SR 120 WB ramps and Airport Way
- SR 120 eastbound (EB) ramps and Airport Way



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EXISTING BICYCLE FACILITIES
FIGURE 11-3



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EXISTING TRANSIT SERVICE

FIGURE 11-4

- Atherton Road and Airport Way
- Woodward Avenue and Airport Way
- Woodward Avenue and Moffat Boulevard
- SR 99 southbound (SB) off-ramp and Moffat Boulevard
- SR 99 SB on-ramp, Moffat Boulevard, and Austin Road
- SR 99 northbound (NB) ramps and Austin Road
- Woodward Avenue and Pillsbury Avenue
- North Project Road and South Manteca Road (only with Evans Estates)
- South Project Road and South Manteca Road (only with Evans Estates)

Roadway Segments

- Main Street between Yosemite Avenue and SR 120
- Main Street between SR 120 WB ramps and SR 120 EB ramps
- Main Street between SR 120 and Atherton Drive
- Main Street between Atherton Drive and Woodward Avenue
- Manteca Road between Woodward Avenue and North Project Road (only with Evans Estates)
- Manteca Road between North Project Roadway and South Project Road (only with Evans Estates)
- Union Road between SR 120 WB ramps and SR 120 EB ramps
- Union Road between SR 120 and Atherton Drive
- Union Road between Atherton Drive and Woodward Avenue
- Airport Way between Daniels Street and SR 120
- Airport Way between SR120 WB ramps and SR 120 EB ramps
- Airport Way between SR 120 and Atherton Drive
- Airport Way between Atherton Drive and Woodward Avenue
- Woodward Avenue between Airport Way and Union Road
- Woodward Avenue between Union Road and Manteca Road
- Woodward Avenue between Manteca Road and Van Ryn Avenue
- Woodward Avenue between Van Ryn Avenue and Pillsbury Road
- Woodward Avenue between Pillsbury Road and Atherton Drive
- Woodward Avenue between Atherton Drive and Moffat Boulevard
- Moffat Boulevard between Woodward Avenue and SR 99 SB off-ramp

- Moffat Boulevard between SR 99 SB off-ramp and Austin Road
- Austin Road between SR 99 NB ramps and Moffat Boulevard

Freeway Mainline Segments

- SR 120 (EB and WB) between Yosemite Avenue and Airport Way
- SR 120 (EB and WB) between Airport Way and Union Road
- SR 120 (EB and WB) between Union Road and Main Street
- SR 120 (EB and WB) between Main Street and SR 99
- SR 99 (NB and SB) between Yosemite Avenue and SR 120
- SR 99 (NB and SB) between SR 120 and Austin Road
- SR 99 (NB and SB) south of Austin Road

Freeway Ramp Junctions

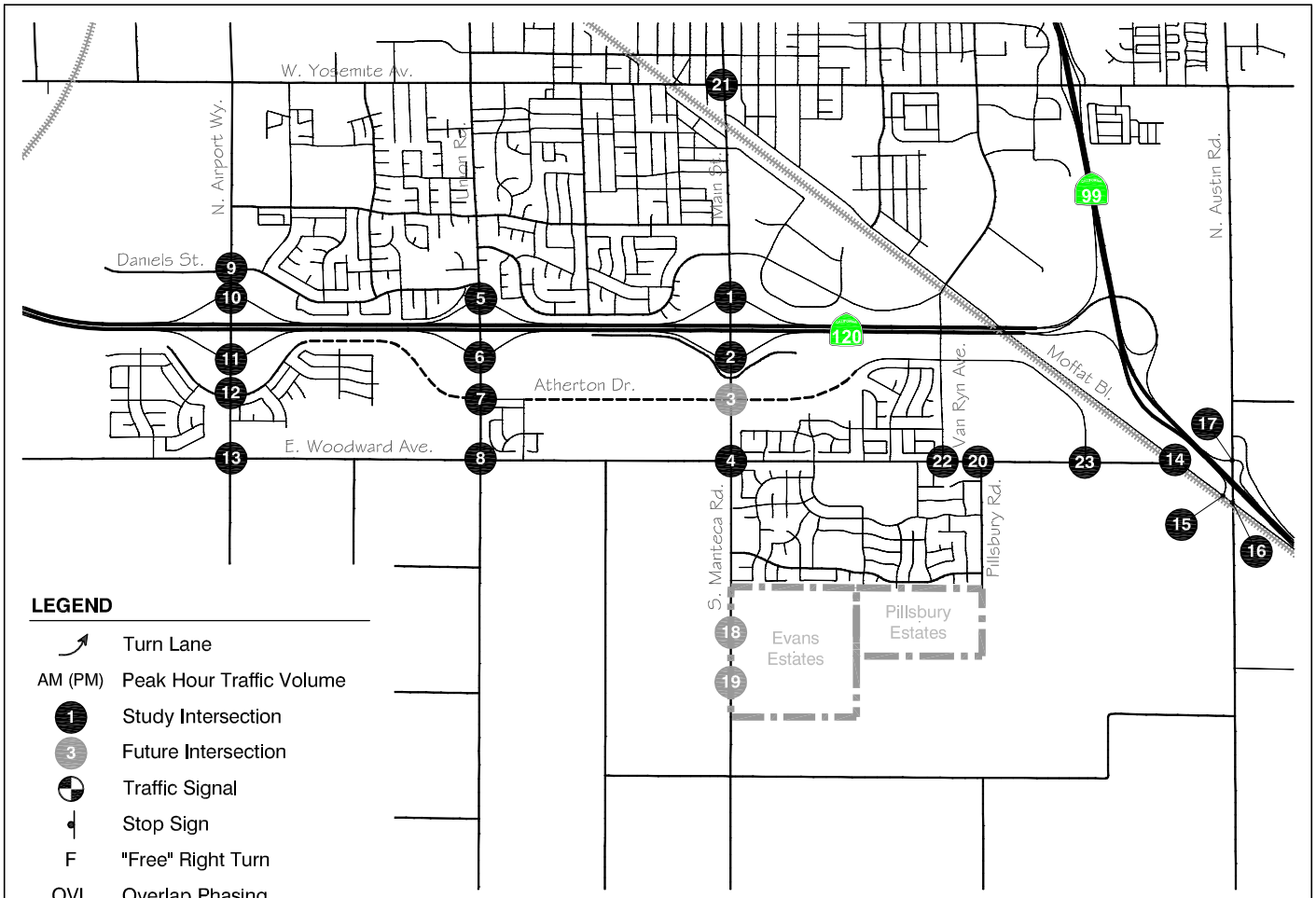
- SR 120 WB on-ramp from Main Street
- SR 120 WB off-ramp to Main Street
- SR 120 EB off-ramp to Main Street
- SR 120 EB on-ramp from Main Street
- SR 99 NB on-ramp from Austin Road
- SR 99 NB off-ramp to Austin Road
- SR 99 NB off-ramp to Austin Road/Moffat Boulevard
- SR 99 NB on-ramp from Austin Road/Moffat Boulevard

Existing and Cumulative Conditions

Existing Conditions

The operations of the local study intersections and regional freeway system were evaluated during AM and PM peak-hour conditions. To assess these conditions, traffic counts were collected at all study intersections during the weekday AM (6:30–8:30) and PM (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.

Figures 11-5A and 11-5B present the existing AM and PM peak-hour turning-movement volumes at the study intersections, as well as existing intersection lane configurations and traffic control devices.

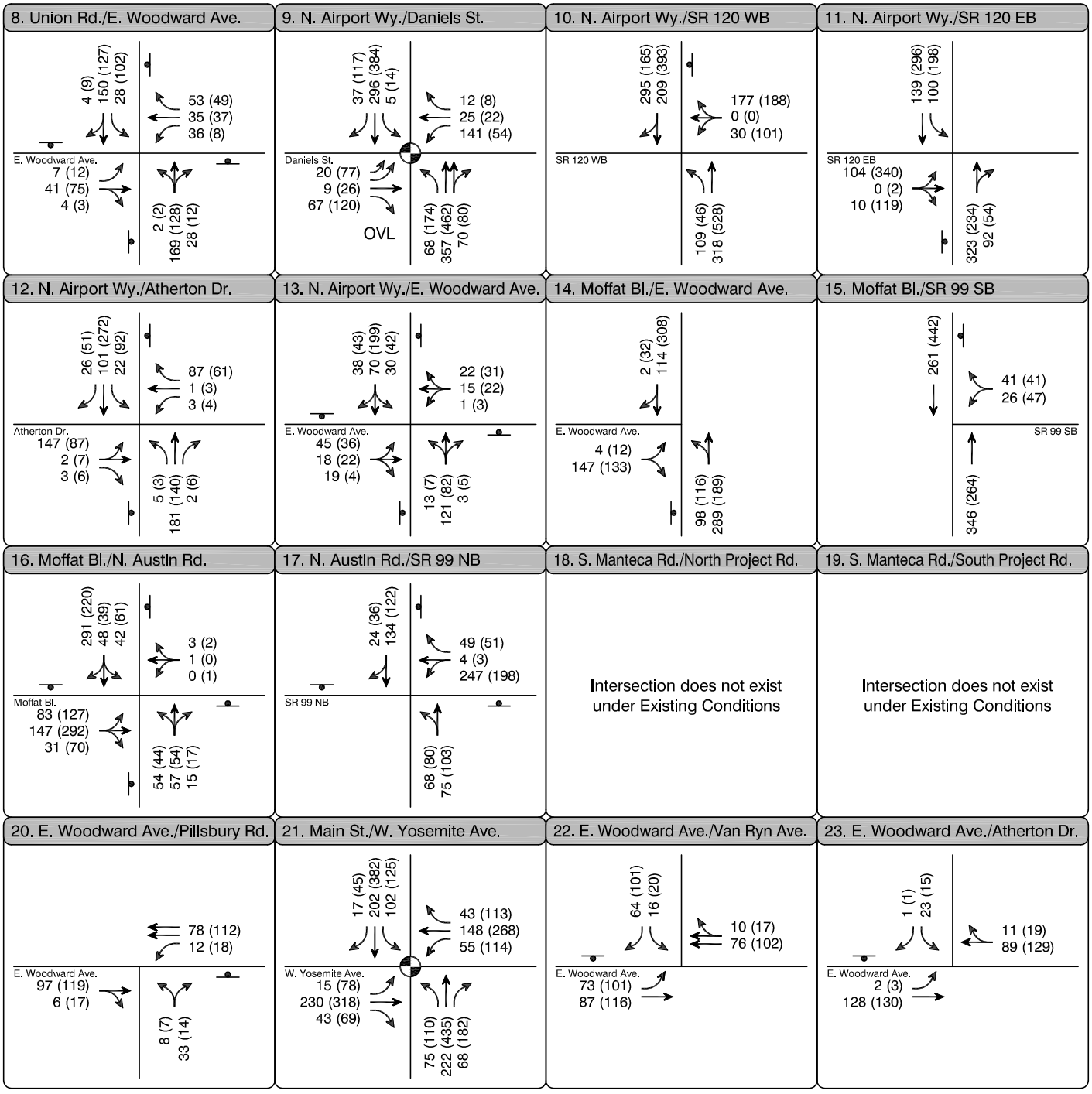


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 11-5A



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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 11-5B

Intersections

Existing intersection lane configurations, traffic control devices, and peak-hour turning-movement volumes were used to calculate the LOS for the 20 existing study intersections during the AM and PM peak hours. Table 11-4 presents the results of the LOS analysis for existing conditions. Appendix I contains the corresponding calculation sheets. The results of the LOS calculations indicate that the following five study intersections currently operate at an unacceptable LOS during either the AM and/or PM peak hours:

- SR 120 WB ramps and Union Road (PM peak hour),
- SR 120 EB ramps and Union Road (AM and PM peak hour),
- SR 120 WB ramps and Airport Way (PM peak hour),
- SR 120 EB ramps and Airport Way (PM peak hour), and
- Yosemite Avenue and Main Street (PM peak hour).

Field observations corroborate the LOS results above. In the PM peak hour particularly, substantial queues were observed at the off-ramp approaches to each of the ramp terminal intersections listed above. PM peak hour queuing was also significant at the Yosemite Avenue/Main Street intersection, particularly in the southbound and eastbound directions.

Peak-Hour Signal Warrants

Peak-hour signal warrant analyses were conducted for the 16 unsignalized study intersections. The analysis applied the peak-hour traffic signal warrant recommended in the California MUTCD (California Department of Transportation 2006). Table 11-5 also summarizes the signal warrant analysis. Appendix I includes the corresponding calculation sheets.

Table 11-5. Existing Intersection Levels of Service and Signal Warrants

Intersection	Peak Hour[a]	Intersection Control	Delay[b]	LOS[c]	Meets Warrant[e]
Main St./SR 120 WB ramps	AM	signal	8	A	N/A
	PM		8	A	
Main St./SR 120 EB ramps	AM	signal	19	C	N/A
	PM		23	C	
Main St./Atherton Dr.	Does not exist under existing conditions.				
Main St./Woodward Ave.	AM	all-way stop-	11	B	No
	PM	controlled	14	B	
Union Rd./SR 120 WB ramps	AM	side-street	24	C	Yes
	PM	stop-controlled	**48**	**E**	
Union Rd./SR 120 EB ramps	AM	side-street	**43**	**E**	Yes
	PM	stop-controlled	**>100**	**F**	
Union Rd./Atherton Dr.	AM	side-street	10	B	No
	PM	stop-controlled	11	A	
Union Rd./Woodward Ave.	AM	side-street;	12	B	No
	PM	stop-controlled	10	B	
Airport Wy./Daniels St.	AM	signal	19	B	N/A
	PM		20	B	
Airport Wy./SR 120 WB ramps	AM	side-street	27	D	Yes
	PM	stop-controlled	**>100**	**F**	
Airport Wy./SR 120 EB ramps	AM	side-street	24	D	Yes
	PM	stop-controlled	**>100**	**F**	
Airport Wy./Atherton Dr.	AM	side-street	19	C	No
	PM	stop-controlled	24	C	
Airport Wy./Woodward Ave.	AM	all-way	9	A	No
	PM	stop-controlled	9	A	
Woodward Ave./Moffat Blvd.	AM	side-street	11	B	No
	PM	stop-controlled	15	C	
Moffat Blvd./SR 99 SB off-ramp	AM	side-street	13	B	No
	PM	stop-controlled	14	B	
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	all-way	12	B	No
	PM	stop-controlled	21	C	
Austin Rd./SR 99 NB ramps	AM	all-way	11	B	No
	PM	stop-controlled	11	B	
S. Manteca Rd./N. Project Rd.	Does not exist under Existing Conditions.				
S. Manteca Rd./S. Project Rd.	Does not exist under Existing Conditions.				
Woodward Ave./Pillsbury Rd.	AM	side-street	9	A	No
	PM	stop-controlled	10	A	
Main St./Yosemite Ave.	AM	signal	31	C	N/A
	PM		**58**	**E**	

Intersection	Peak Hour[a]	Intersection Control	Delay[b]	LOS[c]	Meets Warrant[e]
Woodward Ave./Van Ryn Ave.	AM	side-street	13	B	No
	PM	stop-controlled	13	B	
Woodward Ave./Atherton Dr.	AM	side-street	10	B	No
	PM	stop-controlled	10	B	

Note: **Bold** highlighting denotes intersections with unacceptable operations that also meet peak-hour volume warrants.

[a] AM = morning peak hour; PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

[d] Because of multi-lane approaches at these intersections, the Traffix software program was used to analyze this intersection.

[e] "Yes" means that a peak-hour signal warrant is met in either the AM or PM peak hour; N/A indicates the intersection is already signalized.

Source: Fehr & Peers 2008.

Roadway Segments

Table 11-6 presents the results of the LOS analysis for existing roadway conditions. The LOS calculations indicate that all roadway segments currently operate at an acceptable LOS.

Table 11-6. Roadway Segment Levels of Service—Existing Conditions

Roadway Segment	Lanes	Average Daily Traffic Volume	Level of Service[a]
Main St. between Yosemite Ave. and SR 120	4	12,235	A–C
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	10,215	A–C
Main St. between SR 120 and Atherton Dr.	2	6,560	A–C
Main St. between Atherton Dr. and Woodward Ave.	2	6,560	A–C
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	3,330	A–C
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	1,830	A–C
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	9,515	A–C
Union Rd. between SR 120 and Atherton Dr.	2	4,740	A–C
Union Rd. between Atherton Dr. and Woodward Ave.	2	4,090	A–C
Airport Way between Daniels St. and SR 120	2	11,365	A–C
Airport Way between SR 120 WB ramps and SR 120 EB ramps	2	8,670	A–C

Roadway Segment	Lanes	Average Daily Traffic Volume	Level of Service[a]
Airport Way between SR 120 and Atherton Dr.	2	6,335	A–C
Airport Way between Atherton Dr. and Woodward Ave.	2	3,795	A–C
Woodward Ave. between Airport Way and Union Rd.	2	1,180	A–C
Woodward Ave. between Union Rd. and Main St.	2	2,475	A–C
Woodward Ave. between Main St. and Van Ryn Ave.	4	3,915	A–C
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	2,200	A–C
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	2,415	A–C
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	2,720	A–C
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	6,975	A–C
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	6,800	A–C
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	5,135	A–C

[a] The roadway segment LOS thresholds from the Manteca General Plan EIR do not differentiate between LOS A, B, and C since they all represent acceptable operations.

Source: Fehr & Peers 2008.

Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

Table 11-7 presents the results of the LOS analysis for existing freeway mainline conditions. Appendix I contains the corresponding calculation sheets. The LOS calculations indicate that all mainline segments of SR 120 and SR 99 currently operate at acceptable LOS D or better during both the AM and PM peak hours.

Table 11-7. Freeway Mainline Levels of Service—Existing Conditions

Travel Direction	Segment	Peak Hour[a]	Density or Service Volume[b]	Level of Service
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	16.7	B
		PM	28.4	D
	Airport Way to Union Rd.	AM	17.4	B
		PM	26.3	D
	Union Rd. to Main St.	AM	18.4	C
		PM	24.0	C
	Main St. to SR 99	AM	17.4	B
		PM	20.9	C
Westbound SR 120	SR 99 to Main St.	AM	21.4	C
		PM	20.0	C
	Main St. to Union Rd.	AM	23.3	C
		PM	21.5	C
	Union Rd. to Airport Way	AM	24.4	C
		PM	19.8	C
	Airport Way to Yosemite Ave.	AM	26.3	D
		PM	19.2	C
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	28.3	D
		PM	28.5	D
	Austin Rd. to SR 120 (weaving section)	AM	1,213	C
		PM	1,322	C
	SR 120 to Yosemite Ave. (weaving section PM only)	AM	18.3	C
		PM	1,405	D
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	1,418	D
		PM	1,371	D
	SR 120 to Austin Rd.	AM	25.2	C
		PM	27.2	D
	Austin Rd. to Jack Tone Rd.	AM	26.1	D
		PM	29.2	D

[a] AM = morning peak hour; PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-8 presents the results of the LOS analysis for existing ramp-junction conditions. Appendix I contains the corresponding calculation sheets. The LOS calculations indicate that all ramp junctions currently operate at acceptable LOS D or better during both AM and PM peak hours.

Table 11-8. Ramp Junction Levels of Service—Existing Conditions

Travel Direction	Ramp	Merge/Diverge	Peak Hour[a]	Density (passenger cars per mile per lane)[b]	Level of Service
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	23.5	C
			PM	29.7	D
		Merge (on-ramp)	AM	19.9	B
			PM	23.4	C
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	26.9	C
			PM	25.3	C
		Merge (on-ramp)	AM	25.7	C
			PM	23.8	C
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	32.4	D
			PM	32.5	D
		Merge (on-ramp)	AM	12.13	C
			PM	13.22	C
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	29.8	D
			PM	31.4	D
		Merge (on-ramp)	AM	26.3	C
			PM	29.2	D

[a] AM = morning peak hour; PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Cumulative No-Project Conditions

Cumulative No-Project Conditions are based on traffic volumes obtained from the 2025 version of the 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 their performance in the Manteca area. In both 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 Manteca area under daily, AM peak-hour, and PM peak-hour conditions.

The 2025 version of the SJCOG model was reviewed for the reasonableness of land use assumptions. Based on information from the City's Community Development Department, land uses in several traffic analysis zones were modified to reflect the most recent data. In particular, the traffic analysis zones representing the Austin Road Business Park and Residential Community, located east of the project site along Austin Road, were modified to include partial buildout of the industrial portions of these zones.

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)

Figures 11-6A and 11-6B present 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 No-Project 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, 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 City 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 No-Project Conditions.

While the PFIP is not assumed to be fully funded, the following local roadway projects with alternate funding sources are assumed to be complete under Cumulative No-Project Conditions:

- 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, and
- new unsignalized intersection at Main Street/Atherton Drive.

In addition to local roadway improvements, SJCOG has included the following freeway widening projects in its Tier 1 project list in the RTP:

- Widening of SR 120 from four to six lanes between I-5 and SR 99, and
- Widening of SR 99 to six lanes between SR 4 and SR 120.

These improvements will be funded through a combination of state funds, regional transportation impact fees, and Measure K sales tax revenues. In addition, Proposition 1B bond funds will be used for the SR 99 widening project.

The City, in cooperation with Caltrans District 10 and SJCOG, has initiated a Project Study Report (PSR) for the SR 120/Airport Way interchange, SR 120/Union Road interchange, and SR 99/Austin 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 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 No-Project Conditions.

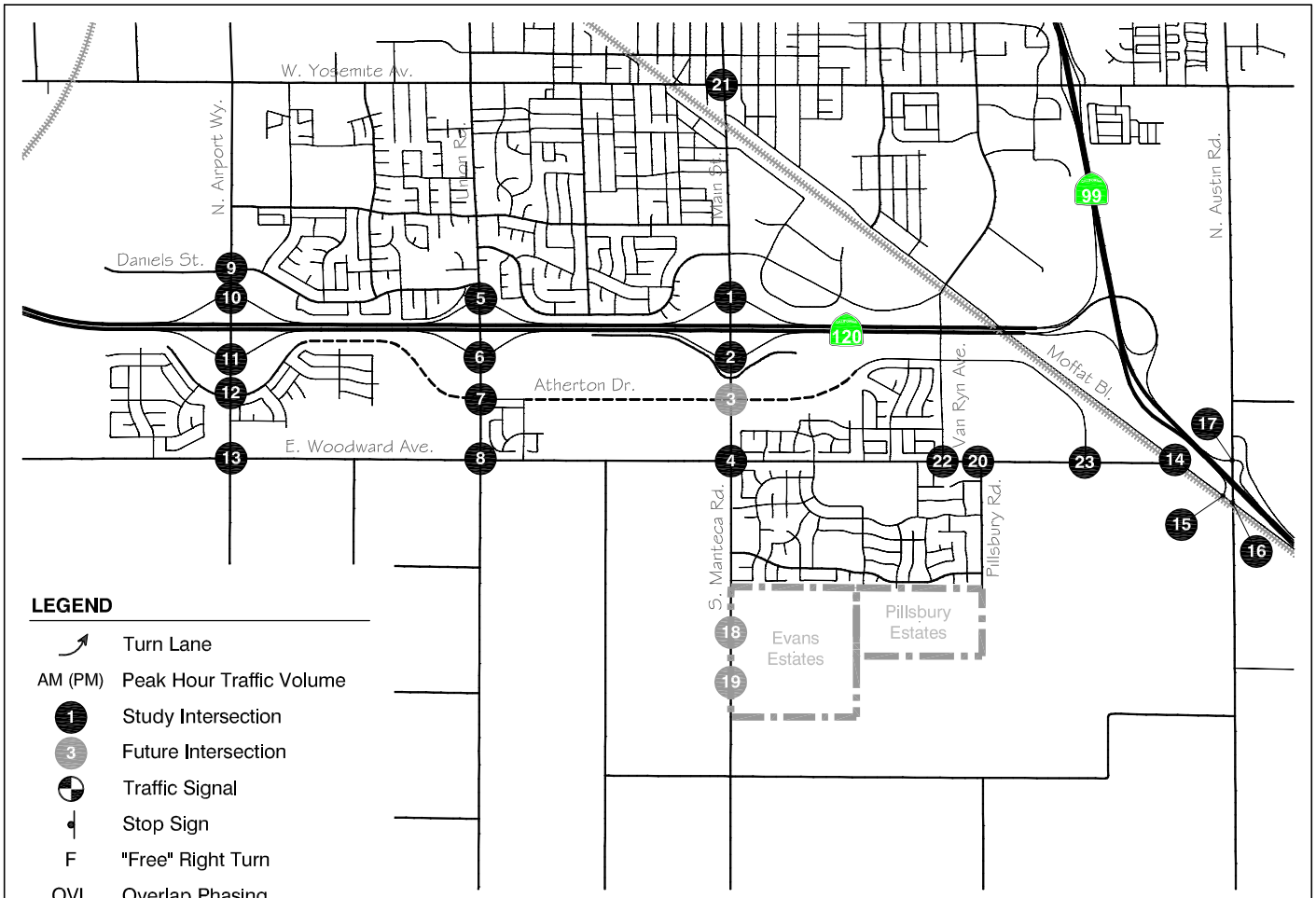
Pedestrian, Bicycle, and Transit Improvements

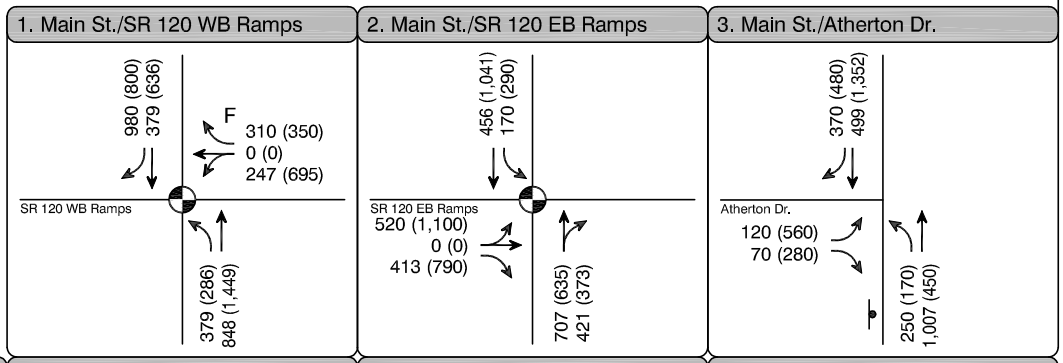
In general, pedestrian and bicycle improvements are added as part of new development in Manteca. Since there are no definitive plans for new development immediately around the project site, no new pedestrian or bicycle improvements are anticipated under Cumulative No-Project Conditions. However, development is expected to occur along Woodward Avenue, and along Main Street north of Woodward Avenue. In these locations, new sidewalks, and bike lanes/paths are expected.

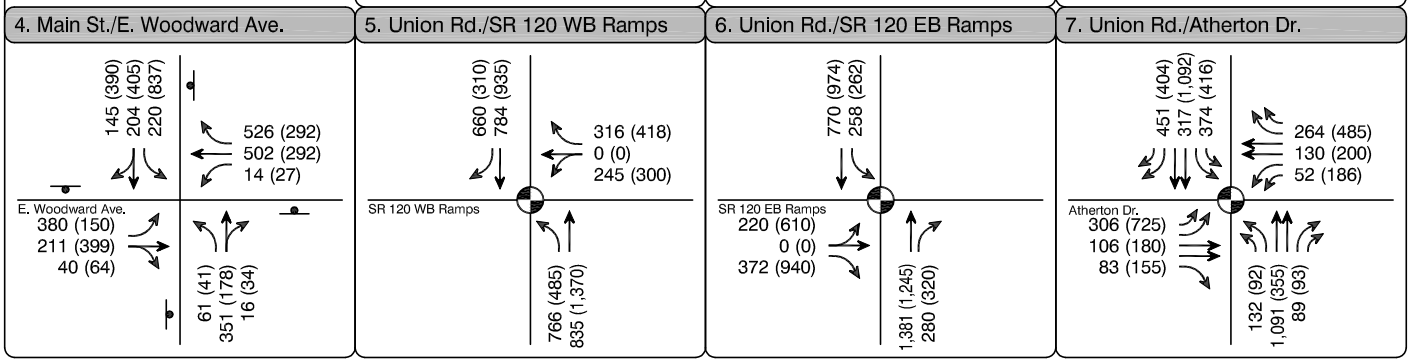
The SJCOG RTP notes that between 2007 and 2019, transit funding will allow for the "incremental development" of fixed-route transit service in Manteca, Lodi, and Tracy. However, no details are given about which routes would change or where new routes would be located. Based on the limited funding available for transit, no new service is anticipated near the project site under Cumulative No-Project Conditions.

Intersection Analysis

Intersection operations were evaluated under Cumulative No-Project AM and PM peak-hour conditions and the results are summarized in Table 11-9.





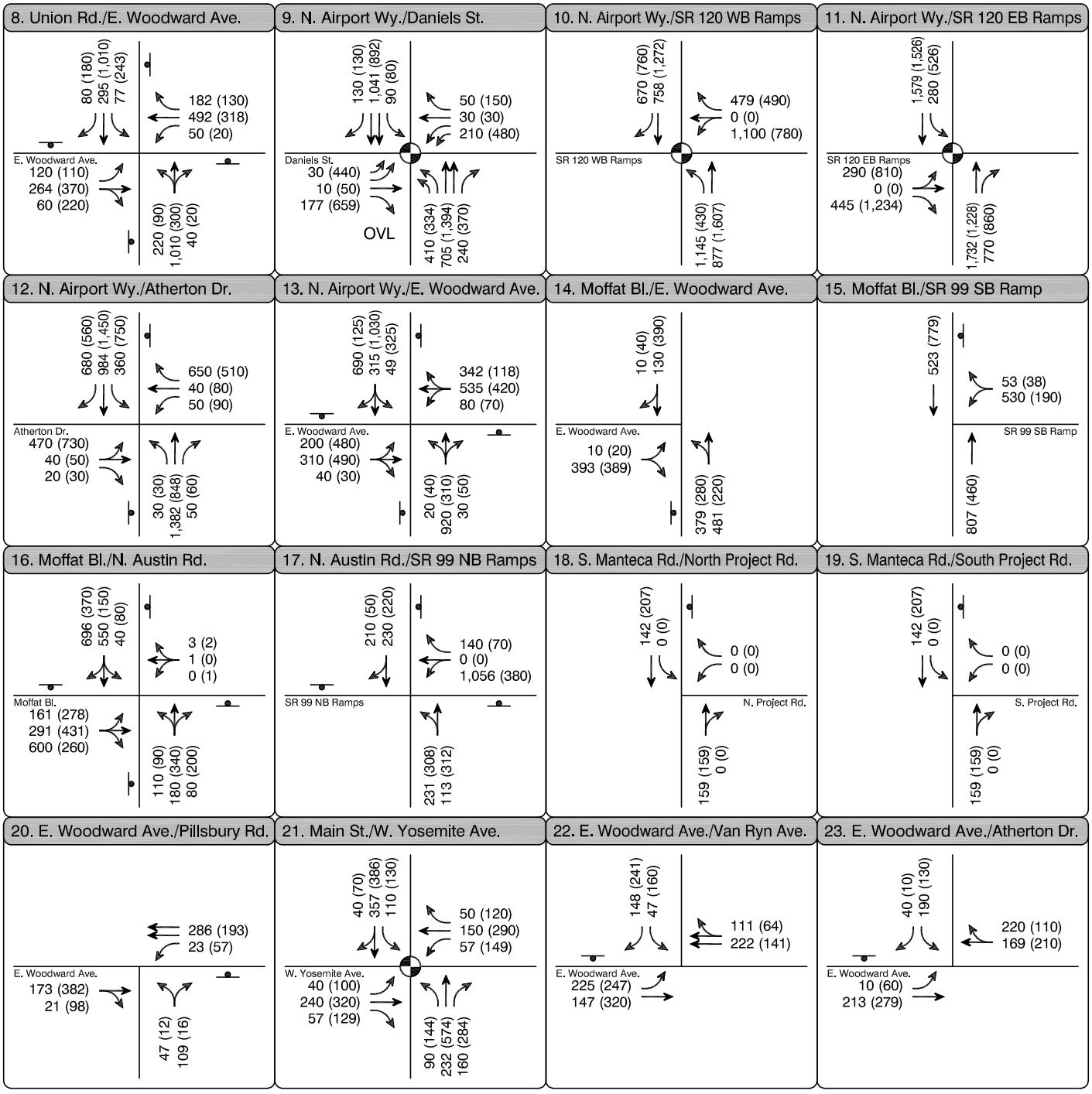


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE NO-PROJECT CONDITIONS

FIGURE 11-6A



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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE NO-PROJECT CONDITIONS

FIGURE 11-6B

Appendix I contains the corresponding calculation sheets. 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:

- Main Street and SR 120 WB ramps (AM and PM peak hour),
- Main Street and SR 120 EB ramps (AM and PM peak hour),
- Main Street and Atherton Drive (AM and PM peak hour),
- Manteca Road and Woodward Avenue (AM and PM peak hour),
- Union Road and SR 120 WB ramps (AM and PM peak hour),
- Union Road and SR 120 EB ramps (AM and PM peak hour),
- Union Road and Atherton Drive (AM and PM peak hour),
- Union Road and Woodward Avenue (AM and PM peak hour),
- Airport Way and Daniels Street (AM and PM peak hour),
- Airport Way and SR 120 WB ramps (AM and PM peak hour),
- Airport Way and SR 120 EB ramps (AM and PM peak hour),
- Airport Way and Atherton Drive (AM and PM peak hour),
- Airport Way and Woodward Avenue (AM and PM peak hour),
- Woodward Avenue and Moffat Boulevard (PM peak hour),
- Moffat Boulevard and SR 99 SB off-ramp (AM and PM peak hour),
- Moffat Boulevard and Austin Road/SR 99 SB on-ramp (AM and PM peak hour),
- Austin Road and SR 99 NB ramps (AM peak hour),
- Woodward Avenue and Van Ryn Avenue (PM peak hour), and
- Main Street and Yosemite Avenue (PM peak hour).

The poor operations at the majority of these intersections is to be expected since only a handful of intersection and roadway improvements were assumed under Cumulative No-Project Conditions. Considering the substantial amount of new land use assumed in the future, the additional traffic overwhelms many of the study intersections.

Peak-Hour Signal Warrants

A peak-hour signal warrant analysis was conducted for each of the 12 unsignalized study intersections. The analysis applied the peak-hour traffic signal warrant recommended in the California MUTCD. Table 11-9 summarizes the signal warrant analysis. Appendix I contains the corresponding calculation sheets. The analysis indicates that under Cumulative No-Project Conditions, all of the unsignalized study intersections would meet peak-hour signal warrant

criteria during either the AM or PM peak hour, except for the Woodward Avenue and Pillsbury Road and the Woodward Avenue and Atherton Drive intersections.

Table 11-9. Intersection Levels of Service—Cumulative No-Project Conditions

Intersection	Intersection Control	Peak Hour[a]	Delay[b]	LOS[c]	Meets Warrant[d]
Main St./SR 120 WB ramps[e]	signal	AM	**69**	**E**	N/A
		PM	**>200**	**F**	
Main St./SR 120 EB ramps[e]	signal	AM	**>200**	**F**	N/A
		PM	**>200**	**F**	
Main St./Atherton Dr.[e]	side-street stop controlled	AM	**111**	**F**	Yes
		PM	**>200**	**F**	
Main St./Woodward Ave.[e]	all-way stop controlled	AM	**>200**	**F**	Yes
		PM	**>200**	**F**	
Union Rd./SR 120 WB ramps[e]	signal	AM	**>200**	**F**	N/A
		PM	**>200**	**F**	
Union Rd./SR 120 EB ramps[e]	signal	AM	**143**	**F**	N/A
		PM	**>200**	**F**	
Union Rd./Atherton Dr.[e]	signal	AM	**>200**	**F**	N/A
		PM	**>200**	**F**	
Union Rd./Woodward Ave.[e]	all-way stop controlled	AM	**>200**	**F**	Yes
		PM	**>200**	**F**	
Airport Wy./Daniels St.[e]	signal	AM	**>200**	**F**	N/A
		PM	**>200**	**F**	
Airport Wy./SR 120 WB ramps[e]	signal	AM	**>200**	**F**	N/A
		PM	**>200**	**F**	
Airport Wy./SR 120 EB ramps[e]	signal	AM	**>200**	**F**	N/A
		PM	**>200**	**F**	
Airport Wy./Atherton Dr.[e]	side-street stop controlled	AM	**>200**	**F**	Yes
		PM	**>200**	**F**	
Airport Wy./Woodward Ave.	all-way stop controlled	AM	**>200**	**F**	Yes
		PM	**>200**	**F**	
Woodward Ave./Moffat Blvd.[e]	side-street stop controlled	AM	**26**	**D**	Yes
		PM	**118**	**F**	
Moffat Blvd./SR 99 SB off-ramp	side-street stop controlled	AM	**>200**	**F**	Yes
		PM	**>200**	**F**	
Moffat Blvd./Austin Rd./SR 99 SB	all-way stop	AM	**89**	**F**	Yes

Intersection	Intersection Control	Peak Hour[a]	Delay[b]	LOS[c]	Meets Warrant[d]
on-ramps[e]	controlled	PM	**141**	**F**	
Austin Rd./SR 99 NB ramps[e]	all-way stop controlled	AM	**>200**	**F**	Yes
		PM	34	D	
S. Manteca Rd./N. Project Rd.	Does not exist under Cumulative No-Project Conditions.				
S. Manteca Rd./N. Project Rd.	Does not exist under Cumulative No-Project Conditions.				
Woodward Ave./Pillsbury Rd.	side-street stop controlled	AM	11	B	No
		PM	12	B	
Main St./Yosemite Ave.	signal	AM	30	C	N/A
		PM	**84**	**F**	
Woodward Ave./Van Ryn Ave.	side-street stop controlled	AM	14	B	Yes
		PM	**40**	**E**	
Woodward Ave./Atherton Dr.	side-street stop controlled	AM	14	B	No
		PM	15	B	

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak-hour signal warrant.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is shown.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown. LOS calculations were conducted using the Synchro software package.

[d] "Yes" means a peak-hour signal warrant is met in either AM or PM peak hour; N/A means the intersection is already signalized.

[e] Because of close proximity to other intersections or high turn movements with short turn pockets, the SimTraffic software program was used to analyze this intersection.

Source: Fehr & Peers 2008.

Roadway Segments

Table 11-10 presents 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:

- Main Street between SR 120 WB ramps and Woodward Avenue,
- Union Road between SR 120 WB ramps and Atherton Drive,
- Airport Way between Daniels Street and Woodward Avenue,

- Woodward Avenue between Airport Way and Main Street, and
- Moffat Boulevard between Woodward Avenue and Austin Road.

Table 11-10. Roadway Segment Levels of Service—Cumulative No-Project Conditions

Roadway Segment	Lanes	Average Daily Traffic Volume	Level of Service
Main St. between Yosemite Ave. and SR 120	4	21,395	C
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	**24,595**	**F**
Main St. between SR 120 and Atherton Dr.	2	**24,185**	**F**
Main St. between Atherton Dr. and Woodward Ave.	2	**20,390**	**F**
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	5,150	C
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	3,335	C
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	**28,600**	**F**
Union Rd. between SR 120 and Atherton Dr.	4	**31,400**	**E**
Union Rd. between Atherton Dr. and Woodward Ave.	4	18,685	C
Airport Way between Daniels St. and SR 120	4	**34,565**	**F**
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	**39,850**	**F**
Airport Way between SR 120 and Atherton Dr.	2	**46,870**	**F**
Airport Way between Atherton Dr. and Woodward Ave.	2	**24,670**	**F**
Woodward Ave. between Airport Way and Union Rd.	2	**13,545**	**D**
Woodward Ave. between Union Rd. and Main St.	2	**12,180**	**D**
Woodward Ave. between Main St. and Van Ryn Ave.	4	12,960	C
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	6,060	C
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	5,605	C
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	7,605	C
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	**13,310**	**D**
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	**16,440**	**F**
Austin Rd. between SR 99 NB ramps and Moffat Blvd./SR 99 SB off-ramp	2	14,250	D

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold.

Source: Fehr & Peers 2008.

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 presented in Table 11-11. Appendix I contains the corresponding calculation sheets.

Table 11-11. Mainline Levels of Service—Cumulative No-Project Conditions

Travel Direction	Segment	Peak Hour[a]	Density or Service Volume[b]	Level of Service
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	18.9	C
		PM	**>45**	**F**
	Airport Way to Union Rd.	AM	20.6	C
		PM	**>45**	**F**
	Union Rd. to Main St.	AM	20.3	C
		PM	**40.6**	**E**
	Main St. to SR 99	AM	18.4	C
		PM	27.9	D
Westbound SR 120	SR 99 to Main St.	AM	27.4	D
		PM	23.1	C
	Main St. to Union Rd.	AM	34.9	D
		PM	23.6	C
	Union Rd. to Airport Way	AM	**>45**	**F**
		PM	24.1	C
	Airport Way to Yosemite Ave.	AM	**>45**	**F**
		PM	23.6	C
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	**>45**	**F**
		PM	**38**	**E**
	Austin Rd. to SR 120 (weaving section)	AM	**1,971**	**F**
		PM	**1,837**	**E**
	SR 120 to Yosemite Ave. (weaving section)	AM	1,121	C
		PM	**1,631**	**E**
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	**1,696**	**E**
		PM	**2,205**	**F**
	SR 120 to Austin Rd.	AM	33.7	D
		PM	**>45**	**F**
	Austin Rd. to Jack Tone Rd.	AM	32.5	D
		PM	**>45**	**F**

Note: **Bold** highlighting denotes intersections with unacceptable operations (LOS E or F).

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

The LOS analysis shows that the following freeway mainline segments are expected to operate at LOS E or F conditions under AM or PM peak-hour conditions:

- SR 120 EB between Yosemite Avenue and Main Street (PM peak hour),
- SR 120 WB between Union Road and Yosemite Avenue (AM peak hour),
- SR 99 NB between Jack Tone Road and SR 120 (AM and PM peak hour),
- SR 120 NB between and Yosemite Avenue (PM peak hour),

- SR 99 SB between Yosemite Avenue and SR 120 (AM and PM peak hour), and
- SR 99 SB between SR 120 and Jack Tone Road (PM peak hour).

The operations of the freeway on-ramp merge and off-ramp diverge segments were analyzed under Cumulative No-Project Conditions and the results presented in Table 11-12. Appendix I contains the corresponding calculation sheets. The following ramp segments operate at an unacceptable LOS E or F during the AM or PM peak hour:

- SR 120 EB off-ramp to Main Street (PM peak hour),
- SR 120 WB on-ramp from Main Street (AM peak hour),
- SR 99 NB off-ramp to Austin Road (AM and PM peak hour),
- SR 99 NB on-ramp from Austin Road (AM and PM peak hour),
- SR 99 SB off-ramp to Austin Road (AM and PM peak hour), and
- SR 99 SB on-ramp from Austin Road (PM peak hour).

Table 11-12. Ramp Junction Levels of Service—Cumulative No-Project Conditions

Travel Direction	Ramp	Merge/Diverge	Peak Hour[a]	Density or Service Volume[b]	Level of Service
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	27.1	C
			PM	**41.0**	**F**
		Merge (on-ramp)	AM	20.5	C
			PM	29.2	D
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	32.2	D
			PM	30.1	D
		Merge (on-ramp)	AM	**35.1**	**E**
			PM	26.9	C
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**41.5**	**F**
			PM	**37.0**	**E**
		Merge (on-ramp)	AM	**1,971**	**F**
			PM	**1,837**	**E**
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**35.6**	**E**
			PM	**44.0**	**F**
		Merge (on-ramp)	AM	31.2	D
			PM	**47.3**	**F**

Note: **Bold** highlighting denotes intersections with unacceptable operations (LOS E or F).

[a] AM = morning peak hour, PM = evening peak hour.

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Impact Analysis

This section presents the thresholds of significance based on the City General Plan, the *City of Manteca Transportation Impact Analysis Guidelines* (City of Manteca 2008c), and the *SJCOG Regional Congestion Management Program* (San Joaquin Council of Governments 2007a).

Thresholds of Significance

Roadway Facilities

The *City of Manteca Transportation Impact Analysis Guidelines* (City of Manteca 2008c) identify 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, and the traffic delay and LOS thresholds that constitute a project-related significant impact.

Significance determinations of impacts were based on guidelines established by the City, SJCOG, and Caltrans, as described below.

Intersections

- A project would have a significant impact on an intersection if the addition of project traffic causes an intersection operating at an acceptable LOS under Existing or Cumulative No-Project Conditions to degrade to an unacceptable LOS, as defined by the following jurisdictions.
  - City of Manteca: LOS C is acceptable except when other factors (described in City General Plan Policy C-P-2) make achieving LOS C impractical, at which point LOS D is acceptable.
  - SJCOG: The SJCOG CMP defines LOS D as acceptable for Airport Way.
  - Caltrans: LOS D is acceptable for all state facilities near the project site.
- A project would have a significant impact on 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 3 seconds or more, or
  - The addition of project traffic increases the average delay for an all-way stop-controlled intersection by 3 seconds or more and the intersection meets the 1-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 3 seconds or more and the intersection meets the 1-hour peak-hour signal warrant.

Freeway Mainline Facilities

- A project would have a significant impact on a freeway mainline segment, if the addition of project traffic causes a freeway segment operating at an acceptable LOS under Existing or Cumulative No-Project Conditions to degrade to an unacceptable LOS, as defined by SJCOG or Caltrans. For freeway mainline segments 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 density by 0.1 passenger car equivalents per mile per lane (pc/mi/ln). For weaving sections, density is estimated based on the service volume and estimated speed. An impact would be significant if the addition of project traffic increases this density estimate by 0.1 pc/mi/ln. The calculation must be conducted for each direction of travel.

Freeway Ramp Facilities

- A project would have a significant impact on a ramp merge or diverge segment, if the addition of project traffic causes a ramp segment operating at an acceptable LOS under Existing or Cumulative No-Project Conditions to degrade to an unacceptable LOS (as defined by SJCOG or Caltrans). For ramp merge or diverge segments operating at an unacceptable LOS under Existing or Cumulative No-Project Conditions, the project would have a significant impact , if the addition of project traffic increases the density by 0.1 pc/mi/ln. For weaving sections, density is estimated based on the service volume and estimated speed; an impact would be significant if the addition of project traffic increases this density estimate by 0.1 pc/mi/ln.

Roadway Segments

The *City of Manteca Traffic 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 of 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.

Pedestrian, Bicycle, and Transit Systems

The pedestrian, bicycle, and transit operations were analyzed to determine whether the project would have a significant impact on any of these facilities. The following criteria were used to analyze the impacts.

Transit System

A project would have a significant impact on the transit system, if it:

- 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, or
- create an inconsistency with policies concerning transit systems set forth in the City General Plan.

Bicycle and Pedestrian Systems

A project would have a significant impact on the bicycle and pedestrian systems, if it would:

- disrupt or interfere with existing or planned bicycle or pedestrian facilities,
- create an unmet need for bicycle or pedestrian facilities, or
- create an inconsistency with policies related to bicycle or pedestrian systems set forth in the City General Plan.

Approach and Methodology

Project impacts 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 proposed 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 includes two developments: Evans Estates and Pillsbury Estates. Evans Estates includes construction of 586 new single-family homes on approximately 160 acres. The Evans Estates site is bordered on the west by South Manteca Road; it is approximately 0.5 mile south of Woodward Avenue. The site plan (Figure 11-2) shows access to the site via two new roadways (North Project Road and South Project Road) connecting to South Manteca Road and a third access point connecting to the future McKinley Avenue extension, south of the site.

Pillsbury Estates includes construction of 275 new single-family homes on approximately 80 acres. The Pillsbury Estates site is located west of Pillsbury Road approximately 0.5 mile south of Woodward Avenue. The site plan (Figure 11-2) shows access to the site via Pillsbury Road and extensions of Buena Vista Drive and Azevedo Avenue.

Traffic Estimates

The amount of traffic added to the roadway system by the proposed project is estimated using a two-step process: (1) trip generation, (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. The following sections describe the results of this process.

Trip Generation

The number of vehicle trips added to the surrounding roadway system by the proposed residential uses was estimated by applying AM and PM peak-hour trip-generation rates from *Trip Generation* 7th Edition (Institute of Transportation Engineers 2003).

Table 11-13 presents the peak-hour trip-generation rates and trip estimates. Evans Estates is estimated to generate 5,608 daily trips, 440 AM peak-hour trips, and 592 PM peak-hour trips. Pillsbury Estates is estimated to generate 2,622 daily trips, 206 AM peak-hour trips, and 277 PM peak-hour trips. Combined, both projects are expected to generate 8,230 daily trips, 646 AM peak-hour trips, and 869 PM peak-hour trips.

Table 11-13. Trip-Generation Rates and Estimates—With Project Conditions

		AM Peak Hour			PM Peak Hour		
Land Use	Daily	In	Out	Total	In	Out	Total
Trip Rates[a]							
Trips per single-family residential unit	9.57	0.18	0.57	0.75	0.64	0.37	1.01
Trip Estimates							
Evans Estates (586 single-family dwelling units)	5,608	110	330	440	373	219	592
Pillsbury Estates (274 single-family dwelling units)	2,622	52	155	206	175	102	277
Both Projects (860 single-family dwelling units)	8,230	162	485	646	547	322	869

Source: Institute of Transportation Engineers 2003.

[a] Trip rates are expressed as trips per dwelling unit.

Trip Distribution and Assignment

The expected distribution of external project trips was determined based on output from the SJCOG TDF model and observations of travel patterns from the

neighborhoods immediately north of the project site. The trip distribution pattern for Evans Estates and Pillsbury Estates is shown in Figure 11-7.

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.

Note that when both projects are assumed to be built, some trips are expected to travel from Evans Estates through Pillsbury Estates and vice versa. Therefore, trip distribution under Plus Both Projects Conditions is slightly different than when considering either development independently.

Existing Plus Project Conditions

Intersection Level of Service 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 three Existing Plus Project scenarios, Existing Plus Evans Estates, Existing Plus Pillsbury Estates, and Existing Plus Both Projects. Figures 11-8A and 11-8B summarize the peak-hour turning movement and volumes for Existing Plus Evans Estates Conditions. Figures 11-9A and 11-9B summarize the peak-hour turning movement volumes for Existing Plus Pillsbury Estates Conditions. Figures 11-10A and 11-10B summarize the peak-hour turning movement and volumes for Existing Plus Both Projects Conditions.

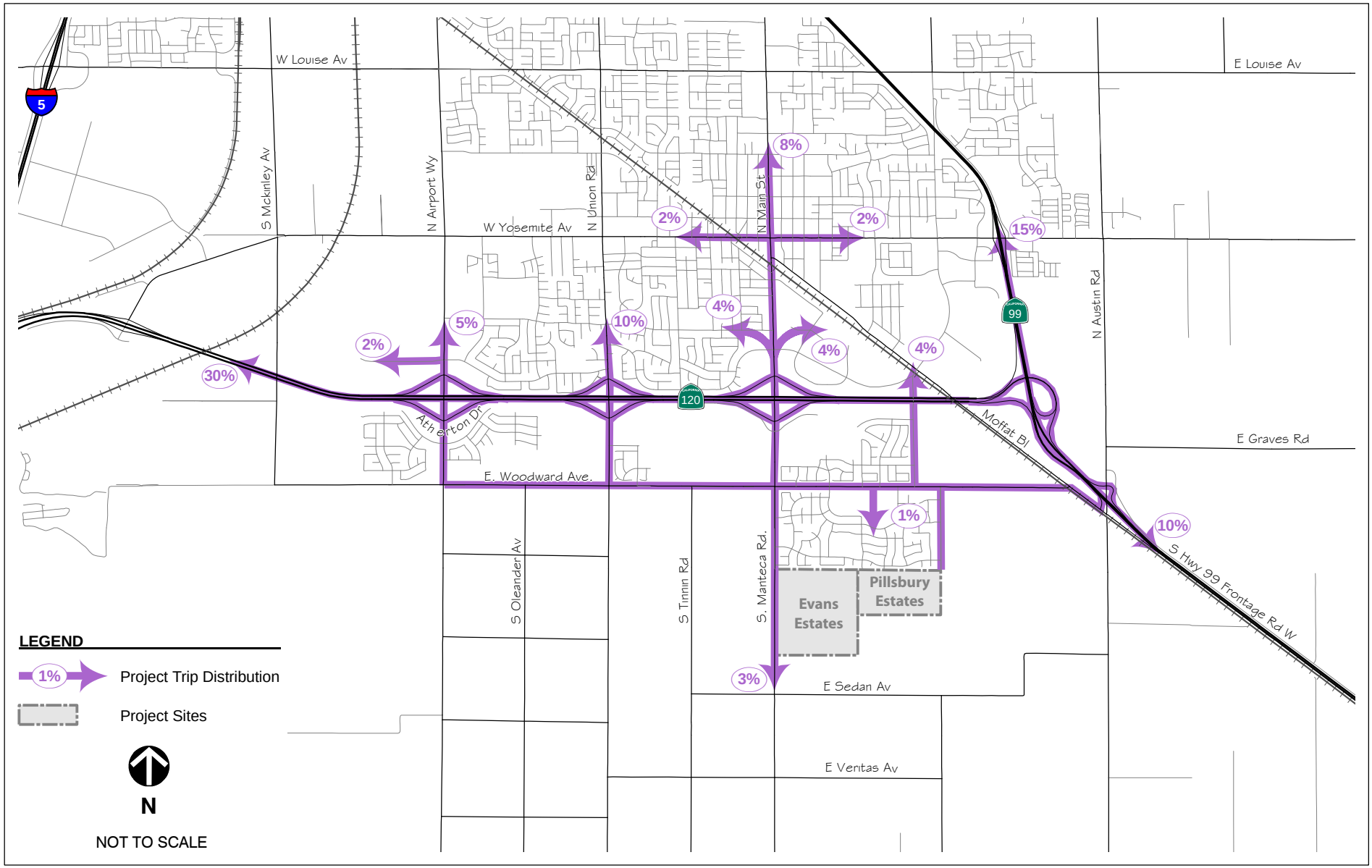
Intersection LOS was calculated with the project-generated traffic to evaluate the operating conditions of the intersections and identify potential impacts on the roadway system. The results of the intersection LOS calculations for Existing Plus Evans Estates Conditions are presented in Table 11-14 and show that the following intersections would operate at an unacceptable LOS D, E, or F during the AM or PM peak hour:

- Main Street and Woodward Avenue (AM and PM peak hour),
- SR 120 WB ramps and Union Road (PM peak hour),
- SR 120 EB ramps and Union Road (AM and PM peak hour),
- SR 120 WB ramps and Airport Way (PM peak hour),
- SR 120 EB ramps and Airport Way (PM peak hour), and
- Main Street and Yosemite Avenue (PM peak hour).

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for Existing Plus Evans Estates Conditions. Table 11-14 presents the results.

Table 11-14. Intersection Levels of Service and Signal Warrants—Existing Plus Evans Estates Conditions

Intersection	Peak Hour[a]	Existing		Existing Plus Evans Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Main St./SR 120 WB ramps	AM	8	A	8	A	N/A	No
	PM	8	A	10	A		
Main St./SR 120 EB ramps	AM	19	C	21	C	N/A	No
	PM	23	C	26	C		
Main St./Atherton Dr.	Does not exist under Existing Conditions.						
Main St./Woodward Ave.	AM	11	B	**35**	**E**	Yes	Yes
	PM	14	B	**59**	**F**		
Union Rd./SR 120 WB ramps	AM	24	C	29	D	Yes	Yes
	PM	**48**	**E**	**56**	**F**		
Union Rd./SR 120 EB ramps	AM	**43**	**E**	**54**	**F**	Yes	Yes
	PM	**>100**	**F**	**>100**	**F**		
Union Rd./Atherton Dr.	AM	10	B	11	B	No	No
	PM	11	A	12	B		
Union Rd./Woodward Ave.	AM	12	B	12	B	No	No
	PM	10	B	11	B		
Airport Wy./Daniels St.	AM	19	B	19	B	N/A	No
	PM	20	B	20	C		
Airport Wy./SR 120 WB ramps	AM	27	D	32	D	Yes	Yes
	PM	**>100**	**F**	**>100**	**F**		
Airport Wy./SR 120 EB ramps	AM	24	D	25	D	Yes	Yes
	PM	**>100**	**F**	**>100**	**F**		
Airport Wy./Atherton Dr.	AM	19	C	20	C	No	No
	PM	24	C	25	D		
Airport Wy./Woodward Ave.	AM	9	A	9	A	No	No
	PM	9	A	9	A		
Woodward Ave./Moffat Blvd.	AM	11	B	11	B	No	No
	PM	15	C	16	C		
Moffat Blvd./SR 99 SB off-ramp	AM	13	B	13	B	No	No

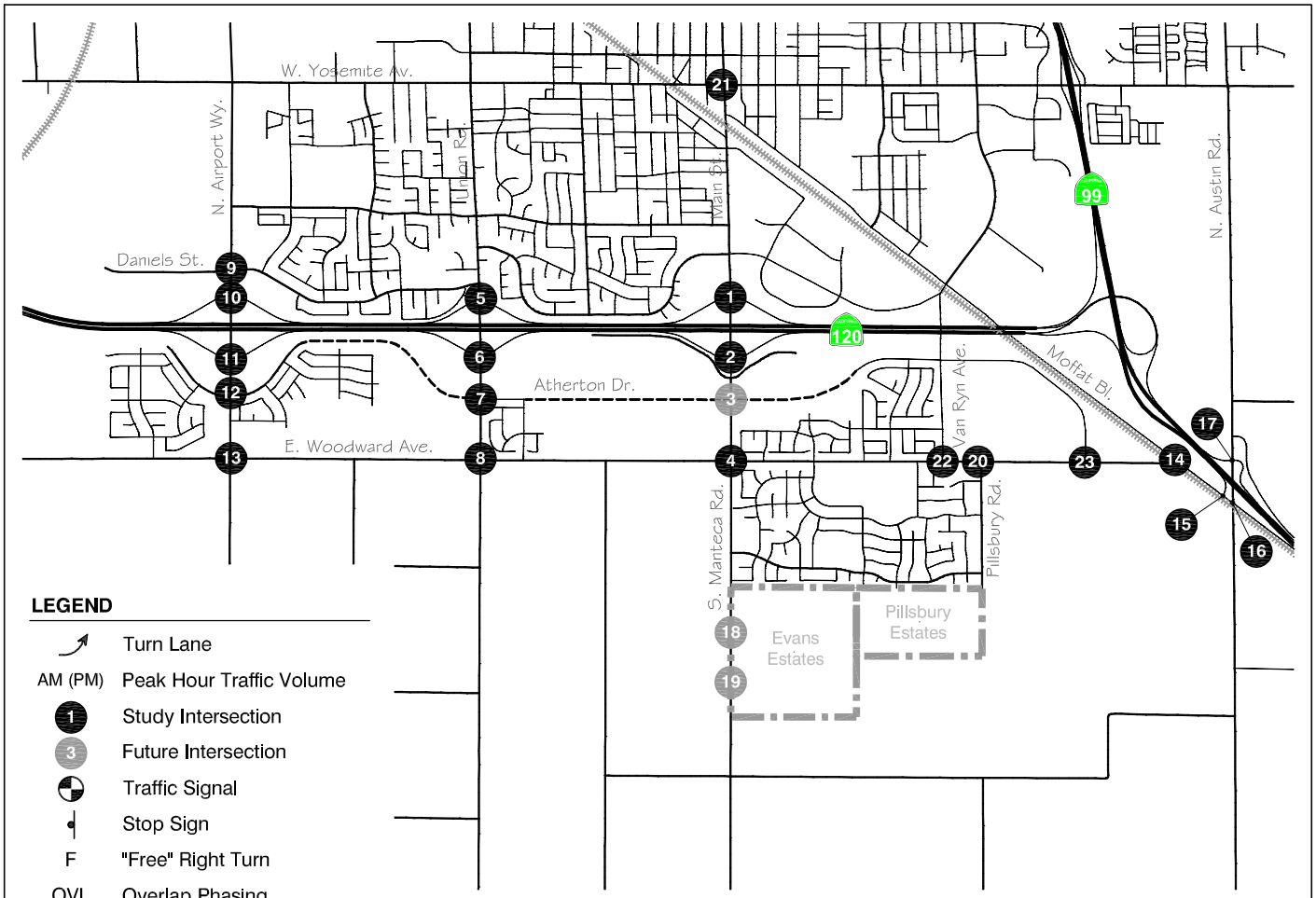


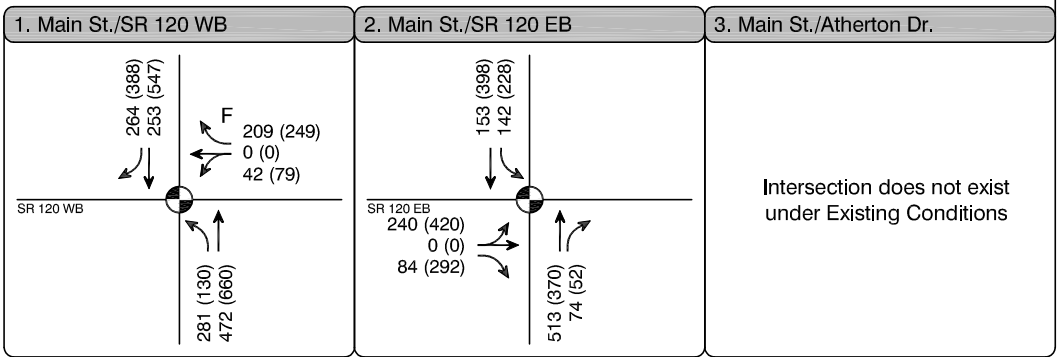
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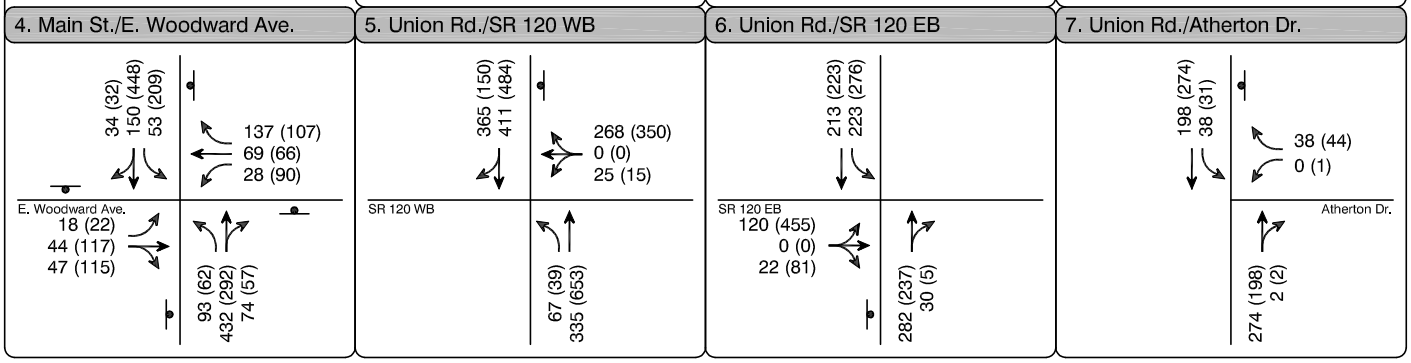
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EXISTING PROJECT TRIP DISTRIBUTION

FIGURE 11-7





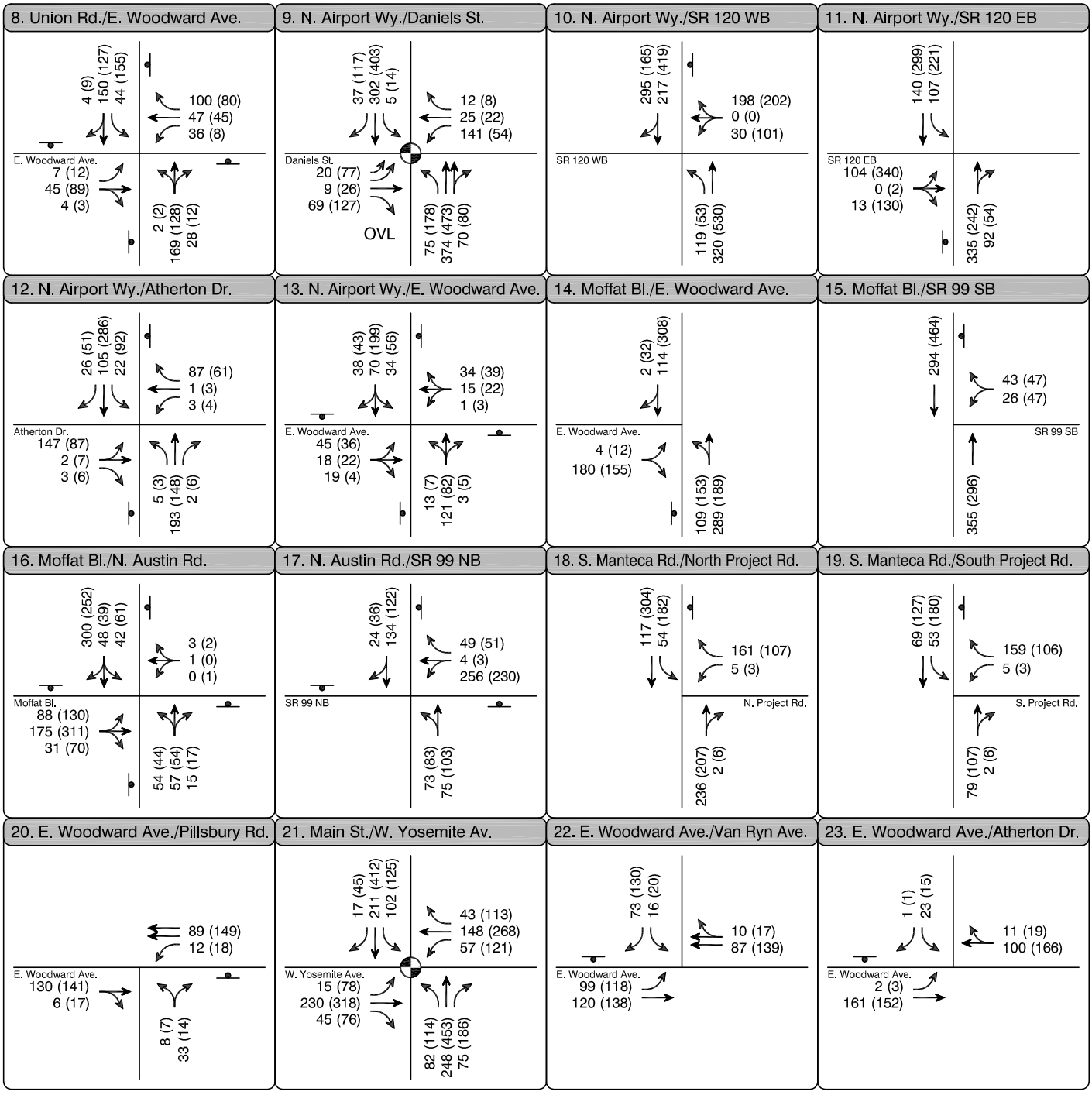


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS EVANS ESTATES PROJECT CONDITIONS

FIGURE 11-8A

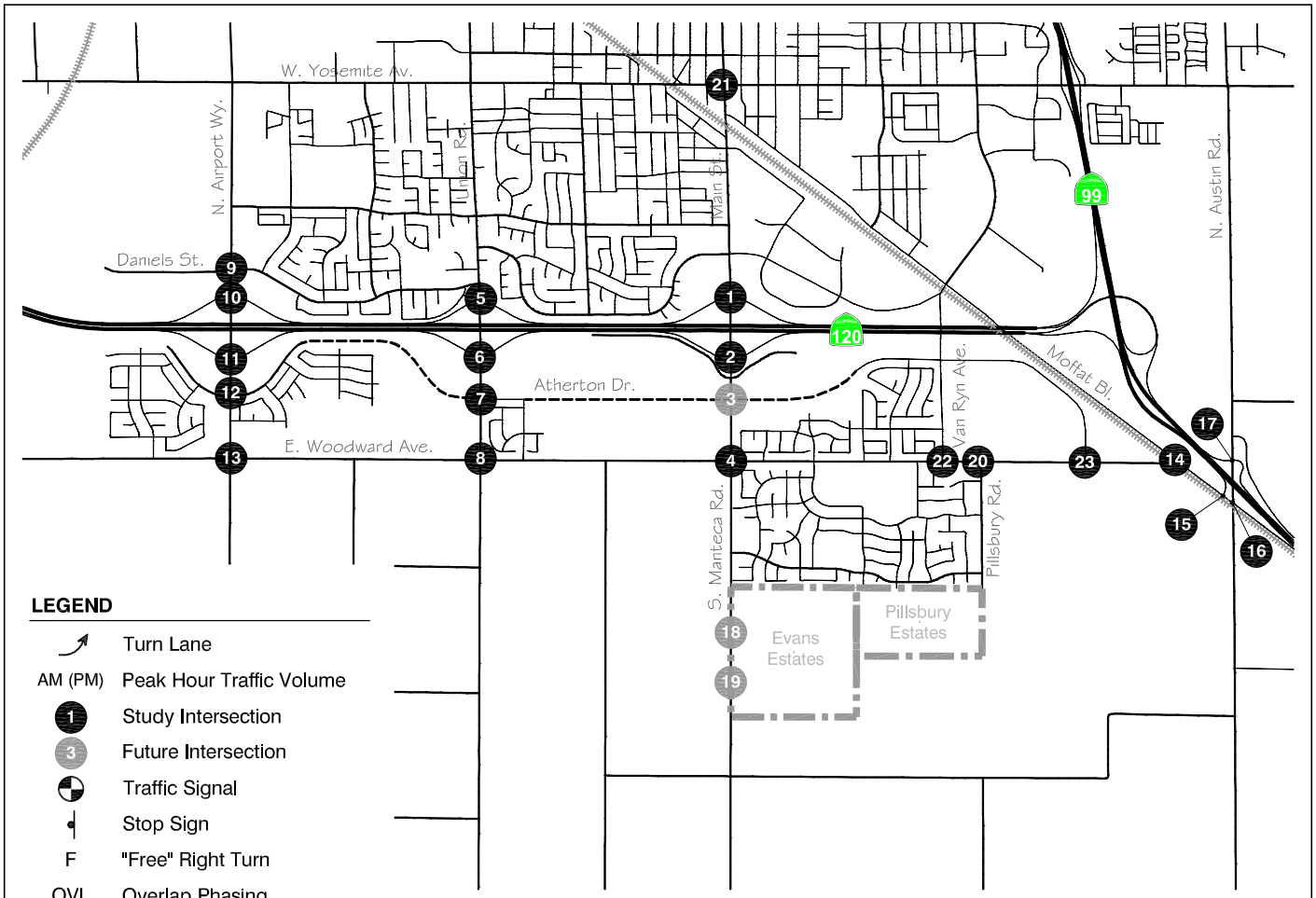


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS EVANS ESTATES PROJECT CONDITIONS

FIGURE 11-8B



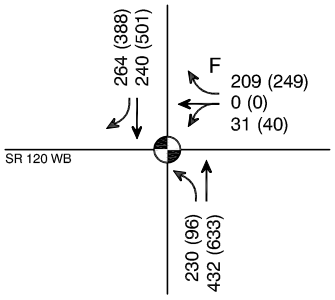
LEGEND

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- 3 Future Intersection
- Traffic Signal
- Stop Sign
- F "Free" Right Turn
- OVL Overlap Phasing
- Project Site
- Future Road

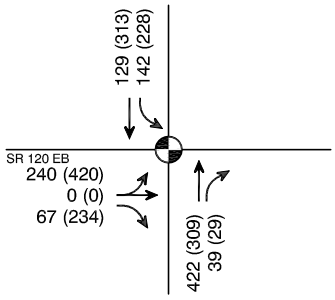
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NOT TO SCALE

1. Main St./SR 120 WB



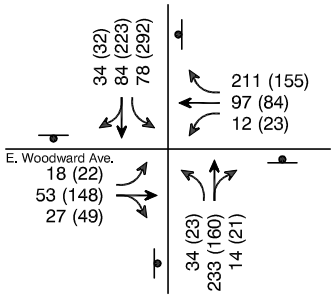
2. Main St./SR 120 EB



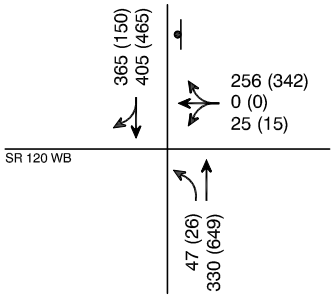
3. Main St./Atherton Dr.

Intersection does not exist under Existing Conditions

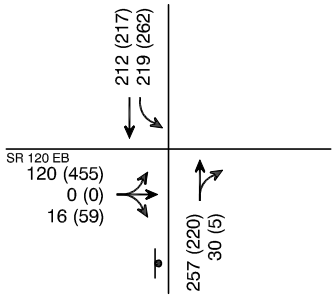
4. Main St./E. Woodward Ave.



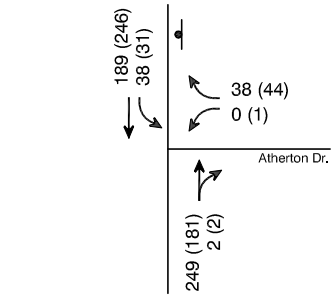
5. Union Rd./SR 120 WB



6. Union Rd./SR 120 EB



7. Union Rd./Atherton Dr.

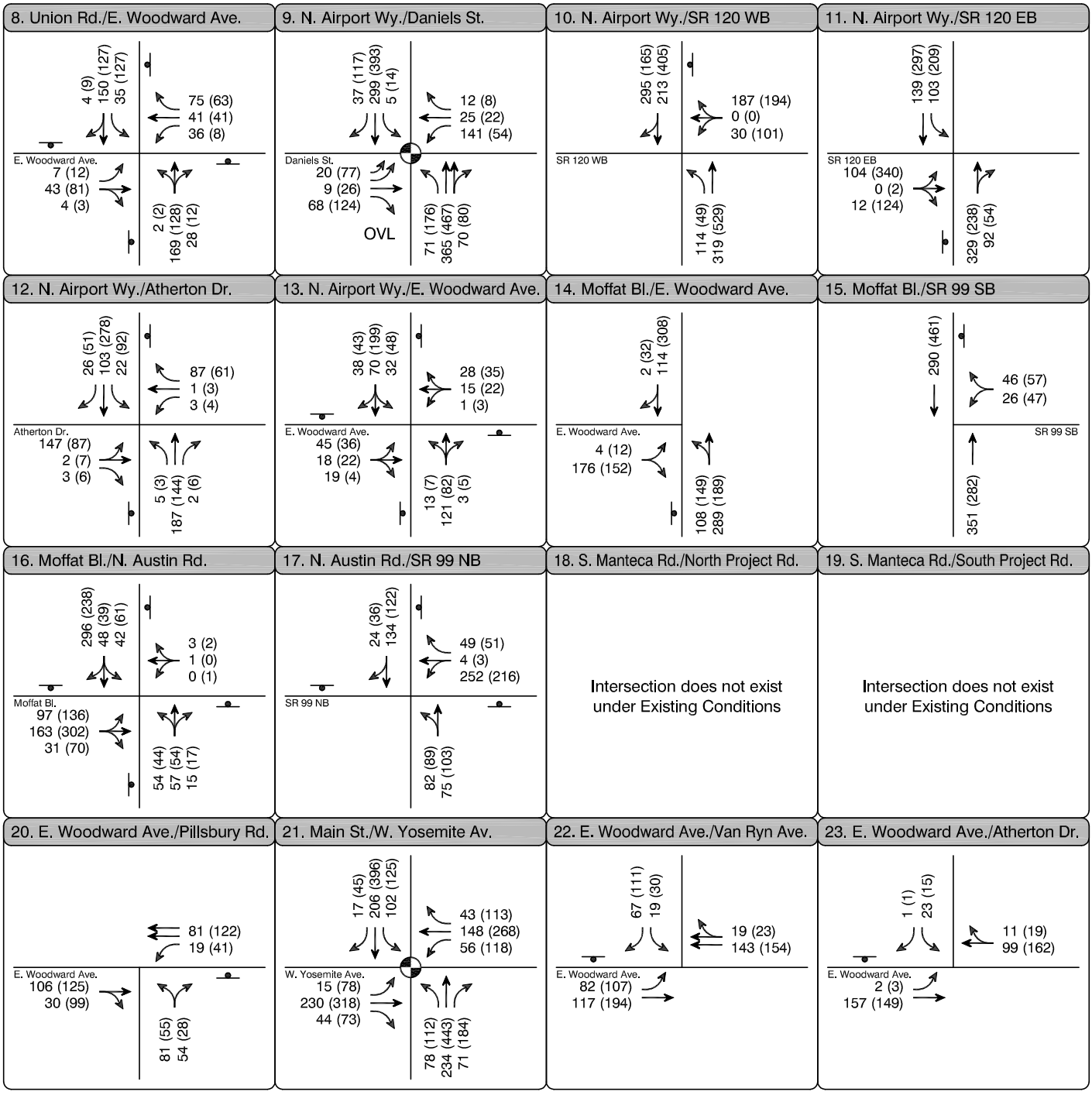


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PILLSBURY ESTATES PROJECT CONDITIONS

FIGURE 11-9A

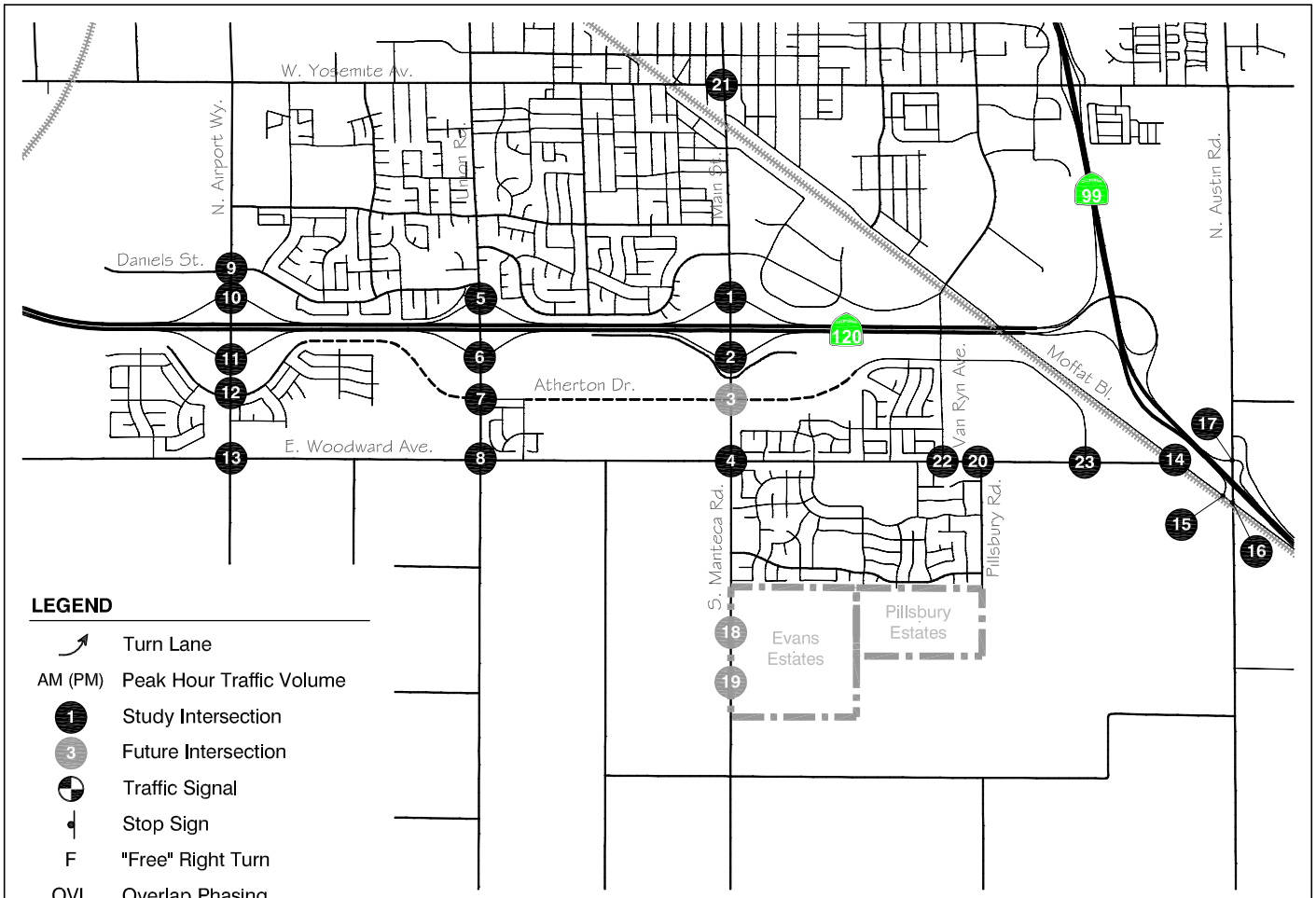


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PILLSBURY ESTATES PROJECT CONDITIONS

FIGURE 11-9B



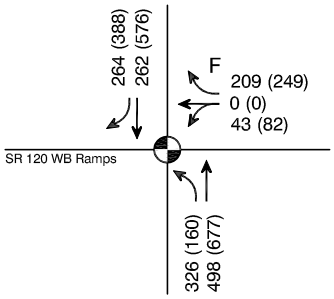
LEGEND

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- 3 Future Intersection
- Traffic Signal
- Stop Sign
- F "Free" Right Turn
- OVL Overlap Phasing
- Project Site
- Future Road

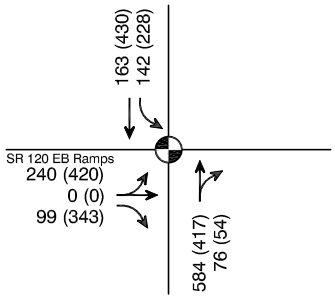
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NOT TO SCALE

1. Main St./SR 120 WB Ramps



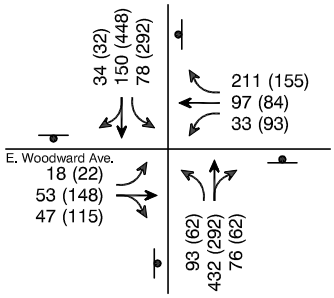
2. Main St./SR 120 EB Ramps



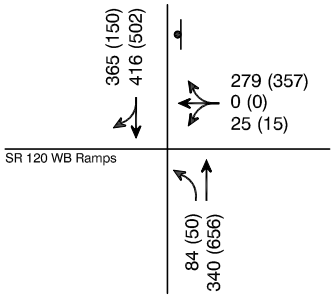
3. Main St./Atherton Dr.

Intersection does not exist under Existing Conditions

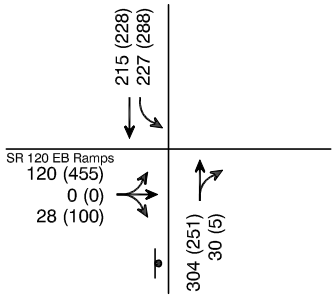
4. Main St./E. Woodward Ave.



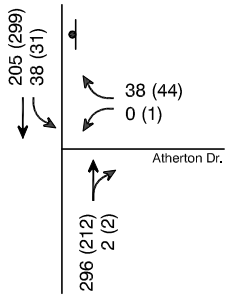
5. Union Rd./SR 120 WB Ramps



6. Union Rd./SR 120 EB Ramps



7. Union Rd./Atherton Dr.

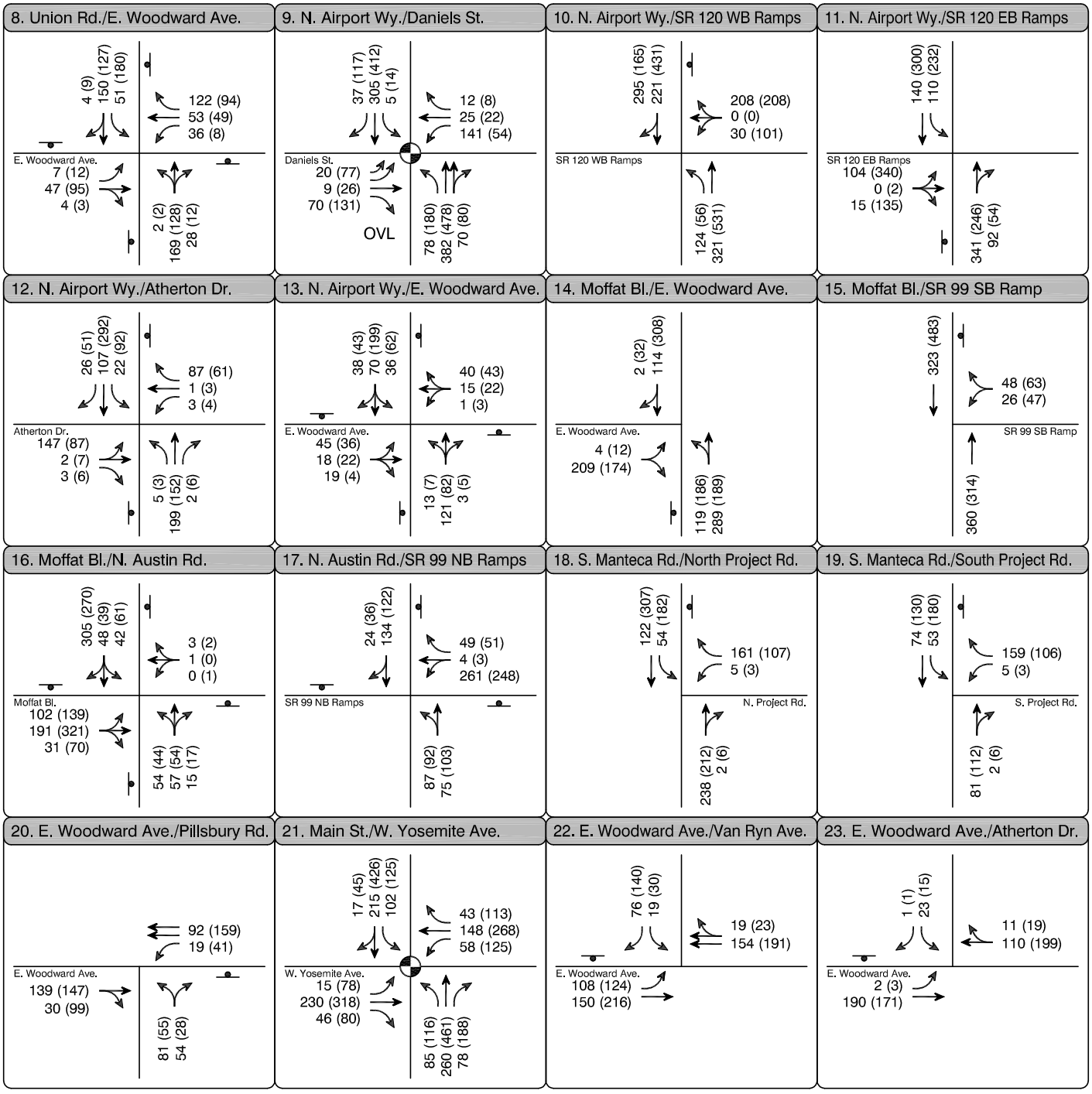


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-10A



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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-10B

Intersection	Peak Hour[a]	Existing		Existing Plus Evans Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
	PM	14	B	15	C		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	12	B	13	B	Yes	No
	PM	21	C	26	D		
Austin Rd./SR 99 NB ramps	AM	11	B	12	B	No	No
	PM	11	B	11	B		
S. Manteca Rd./N. Project Rd.	AM	Does not exist under Existing Conditions.		12	B	No	No
	PM			11	B		
S. Manteca Rd./S. Project Rd.	AM			10	A	No	No
	PM			10	A		
Woodward Ave./Pillsbury Rd.	AM	9	A	10	A	No	No
	PM	10	A	10	A		
Main St./Yosemite Ave.	AM	31	C	32	C	N/A	Yes
	PM	**58**	**E**	**62**	**E**		
Woodward Ave./Van Ryn Ave.	AM	13	B	14	B	No	No
	PM	13	B	13	B		
Woodward Ave./Atherton Dr.	AM	10	B	11	B	No	No
	PM	10	B	11	B		

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak hour signal warrant.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

The results of the intersection LOS calculations for Existing Plus Pillsbury Estates Conditions are presented in Table 11-15 and show that the following intersections would operate unacceptably during the AM or PM peak hour:

- SR 120 WB ramps and Union Road (PM peak hour),
- SR 120 EB ramps and Union Road (AM and PM peak hour),
- SR 120 WB ramps and Airport Way (PM peak hour),
- SR 120 EB ramps and Airport Way (PM peak hour), and

- Main Street and Yosemite Avenue (PM peak hour).

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for Existing Plus Pillsbury Estates Conditions. Table 11-15 presents the results.

Table 11-15. Intersection Levels of Service and Signal Warrants—Existing Plus Pillsbury Estates Conditions

Intersection	Peak Hour[a]	Existing		Existing Plus Pillsbury Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Main St./SR 120 WB ramps	AM	8	A	7	A	N/A	No
	PM	8	A	9	A		
Main St./SR 120 EB ramps	AM	19	C	21	C	N/A	No
	PM	23	C	24	C		
Main St./Atherton Dr.	Does not exist under Existing or Existing Plus Pillsbury Estates Conditions.						
Main St./Woodward Ave.	AM	11	B	12	B	No	No
	PM	14	B	16	C		
Union Rd./SR 120 WB ramps	AM	24	C	29	D	**Yes**	**Yes**
	PM	**48**	**E**	**52**	**F**		
Union Rd./SR 120 EB ramps	AM	**43**	**E**	**48**	**F**	**Yes**	**Yes**
	PM	**>100**	**F**	**>100**	**F**		
Union Rd./Atherton Dr.	AM	10	B	11	B	No	No
	PM	11	A	12	B		
Union Rd./Woodward Ave.	AM	12	B	12	B	No	No
	PM	10	B	10	B		
Airport Wy./Daniels St.	AM	19	B	19	B	N/A	No
	PM	20	B	20	C		
Airport Wy./SR 120 WB ramps	AM	27	D	29	D	**Yes**	**Yes**
	PM	**>100**	**F**	**>100**	**F**		
Airport Wy./SR 120 EB ramps	AM	24	D	24	D	**Yes**	**Yes**
	PM	**>100**	**F**	**>100**	**F**		
Airport Wy./Atherton Dr.	AM	19	C	20	C	No	No
	PM	24	C	25	D		
Airport Wy./Woodward Ave.	AM	9	A	9	A	No	No
	PM	9	A	9	A		
Woodward Ave./Moffat Blvd.	AM	11	B	11	B	No	No
	PM	15	C	16	C		

Intersection	Peak Hour[a]	Existing		Existing Plus Pillsbury Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Moffat Blvd./SR 99 SB off-ramp	AM	13	B	13	B	No	No
	PM	14	B	15	C		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	12	B	13	B	**Yes**	No
	PM	21	C	25	D		
Austin Rd./SR 99 NB ramps	AM	11	B	12	B	No	No
	PM	11	B	11	B		
S. Manteca Rd./N. Project Rd.	Does not exist under Existing and Existing Plus Pillsbury Estates Conditions.						
S. Manteca Rd./S. Project Rd.							
Woodward Ave./Pillsbury Rd.	AM	9	A	11	B	No	No
	PM	10	A	12	B		
Main St./Yosemite Ave.	AM	31	C	32	C	N/A	No
	PM	**58**	**E**	**60**	**E**		
Woodward Ave./Van Ryn Ave.	AM	13	B	15	B	No	No
	PM	13	B	14	B		
Woodward Ave./Atherton Dr.	AM	10	B	11	B	No	No
	PM	10	B	11	B		

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak hour signal warrant.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

The results of the intersection LOS calculations for Existing Plus Both Conditions are presented in Table 11-16 and show that the following intersections would operate unacceptably during the AM or PM peak hour:

- Main Street and Woodward Avenue (AM and PM peak hour),
- SR 120 WB ramps and Union Road (PM peak hour),
- SR 120 EB ramps and Union Road (AM and PM peak hour),
- SR 120 WB ramps and Airport Way (AM and PM peak hour),

- SR 120 EB ramps and Airport Way (PM peak hour), and
- Main Street and Yosemite Avenue (PM peak hour).

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for Existing Plus Both Conditions. Table 11-16 presents the results.

Table 11-16. Intersection Levels of Service and Signal Warrants—Existing Plus Both Projects Conditions

Intersection	Peak Hour[a]	Existing		Existing Plus Both Projects		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Main St./SR 120 WB ramps	AM	8	A	8	A	N/A	No
	PM	8	A	11	A		
Main St./SR 120 EB ramps	AM	19	C	23	C	N/A	No
	PM	23	C	29	C		
Main St./Atherton Dr.	Does not exist under Existing Conditions.						
Main St./Woodward Ave.	AM	11	B	**45**	**E**	**Yes**	**Yes**
	PM	14	B	**72**	**F**		
Union Rd./SR 120 WB ramps	AM	24	C	32	D	**Yes**	**Yes**
	PM	**48**	**E**	**60**	**F**		
Union Rd./SR 120 EB ramps	AM	**43**	**E**	**61**	**F**	**Yes**	**Yes**
	PM	**>100**	**F**	**>100**	**F**		
Union Rd./Atherton Dr.	AM	10	B	11	B	No	No
	PM	11	A	12	B		
Union Rd./Woodward Ave.	AM	12	B	12	B	No	No
	PM	10	B	11	B		
Airport Wy./Daniels St.	AM	19	B	19	B	N/A	No
	PM	20	B	20	C		
Airport Wy./SR 120 WB ramps	AM	27	D	**35**	**E**	**Yes**	**Yes**
	PM	**>100**	**F**	**>100**	**F**		
Airport Wy./SR 120 EB ramps	AM	24	D	26	D	**Yes**	**Yes**
	PM	**>100**	**F**	**>100**	**F**		
Airport Wy./Atherton Dr.	AM	19	C	21	C	No	No
	PM	24	C	26	D		
Airport Wy./Woodward Ave.	AM	9	A	9	A	No	No
	PM	9	A	10	A		
Woodward Ave./Moffat Blvd.	AM	11	B	11	B	No	No
	PM	15	C	17	C		
Moffat Blvd./SR 99 SB off-ramp	AM	13	B	14	B	No	No

Intersection	Peak Hour[a]	Existing		Existing Plus Both Projects		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
	PM	14	B	15	C		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	12	B	14	B	**Yes**	No
	PM	21	C	31	C		
Austin Rd./SR 99 NB ramps	AM	11	B	12	B	No	No
	PM	11	B	12	B		
S. Manteca Rd./N. Project Rd.	AM			12	B	No	No
	PM	Does not exist under Existing Conditions.		11	B		
S. Manteca Rd./S. Project Rd.	AM			10	A	No	No
	PM			10	A		
Woodward Ave./Pillsbury Rd.	AM	9	A	11	B	No	No
	PM	10	A	12	B		
Main St./Yosemite Ave.	AM	31	C	33	C	N/A	Yes
	PM	58	E	65	E		
Woodward Ave./Van Ryn Ave.	AM	13	B	16	C	No	No
	PM	13	B	16	B		
Woodward Ave./Atherton Dr.	AM	10	B	11	B	No	No
	PM	10	B	11	B		

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak hour signal warrant.

[a] AM = morning peak hour; PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

Roadway Segments

Tables 11-17 through 11-19 present the results of the roadway segment LOS analysis under the three scenarios of Existing Plus Project Conditions. The LOS calculations indicate that all roadway segments are expected to operate at an acceptable LOS.

Table 11-17. Roadway Segment Levels of Service—Existing Plus Evans Estates Conditions

Roadway Segment	Lanes	Existing No Project		Existing Plus Evans	
		ADT[a]	LOS[b]	ADT[a]	LOS[b]
Main St. between Yosemite Ave. and SR 120	4	12,235	C	13,050	C
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	10,215	C	12,320	D
Main St. between SR 120 and Atherton Dr.	2	6,560	C	9,675	C
Main St. between Atherton Dr. and Woodward Ave.	2	6,560	C	9,670	C
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	3,330	C	8,335	C
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	1,830	C	4,400	C
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	9,515	C	10,145	C
Union Rd. between SR 120 and Atherton Dr.	2	4,740	C	5,475	C
Union Rd. between Atherton Dr. and Woodward Ave.	2	4,090	C	4,825	C
Airport Way between Daniels St. and SR 120	2	11,365	C	11,730	C
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	8,670	C	8,945	C
Airport Way between SR 120 and Atherton Dr.	2	6,335	C	6,525	C
Airport Way between Atherton Dr. and Woodward Ave.	2	3,795	C	3,985	C
Woodward Ave. between Airport Way and Union Rd.	2	1,180	C	1,370	C
Woodward Ave. between Union Rd. and Main St.	2	2,475	C	3,395	C
Woodward Ave. between Main St. and Van Ryn Ave.	4	3,915	C	4,860	C
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	2,200	C	2,735	C
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	2,415	C	2,930	C
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	2,720	C	3,235	C
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	6,975	C	7,490	C
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	6,800	C	7,280	C
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	5,135	C	5,380	C

[a] ADT = Average Daily Traffic Volume

[b] LOS = Level of Service

Source: Fehr & Peers 2008.

Table 11-18. Roadway Segment Levels of Service—Existing Plus Pillsbury Estates Conditions

Roadway Segment	Lanes	Existing No Project		Existing Plus Pillsbury	
		ADT[a]	LOS[b]	ADT[a]	LOS[b]
Main St. between Yosemite Ave. and SR 120	4	12,235	C	12,575	C
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	10,215	C	11,015	C
Main St. between SR 120 and Atherton Dr.	2	6,560	C	7,710	C
Main St. between Atherton Dr. and Woodward Ave.	2	6,560	C	7,710	C
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	3,330	C	3,405	C
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	1,830	C	1,905	C
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	9,515	C	9,810	C
Union Rd. between SR 120 and Atherton Dr.	2	4,740	C	5,080	C
Union Rd. between Atherton Dr. and Woodward Ave.	2	4,090	C	4,430	C
Airport Way between Daniels St. and SR 120	2	11,365	C	11,535	C
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	8,670	C	8,795	C
Airport Way between SR 120 and Atherton Dr.	2	6,335	C	6,425	C
Airport Way between Atherton Dr. and Woodward Ave.	2	3,795	C	3,885	C
Woodward Ave. between Airport Way and Union Rd.	2	1,180	C	1,270	C
Woodward Ave. between Union Rd. and Main St.	2	2,475	C	2,905	C
Woodward Ave. between Main St. and Van Ryn Ave.	4	3,915	C	5,410	C
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	2,200	C	3,495	C
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	2,415	C	2,870	C
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	2,720	C	3,175	C
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	6,975	C	7,430	C
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	6,800	C	7,160	C
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	5,135	C	5,365	C

[a] ADT = Average Daily Traffic Volume

[b] LOS = Level of Service

Source: Fehr & Peers 2008.

Table 11-19. Roadway Segment Levels of Service—Existing Plus Both Projects Conditions

Roadway Segment	Lanes	Existing No Project ADT[a]	Existing No Project LOS[b]	Existing Plus Both Projects ADT[a]	Existing Plus Both Projects LOS[b]
Main St. between Yosemite Ave. and SR 120	4	12,235	C	13,390	C
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	10,215	C	13,120	D
Main St. between SR 120 and Atherton Dr.	2	6,560	C	10,825	C
Main St. between Atherton Dr. and Woodward Ave.	2	6,560	C	10,820	C
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	3,330	C	8,410	C
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	1,830	C	4,475	C
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	9,515	C	10,440	C
Union Rd. between SR 120 and Atherton Dr.	2	4,740	C	5,815	C
Union Rd. between Atherton Dr. and Woodward Ave.	2	4,090	C	5,165	C
Airport Way between Daniels St. and SR 120	2	11,365	C	11,900	C
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	8,670	C	9,070	C
Airport Way between SR 120 and Atherton Dr.	2	6,335	C	6,615	C
Airport Way between Atherton Dr. and Woodward Ave.	2	3,795	C	4,075	C
Woodward Ave. between Airport Way and Union Rd.	2	1,180	C	1,460	C
Woodward Ave. between Union Rd. and Main St.	2	2,475	C	3,825	C
Woodward Ave. between Main St. and Van Ryn Ave.	4	3,915	C	6,355	C
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	2,200	C	4,010	C
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	2,415	C	3,385	C
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	2,720	C	3,690	C
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	6,975	C	7,945	C
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	6,800	C	7,640	C
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	5,135	C	5,610	C

[a] ADT = Average Daily Traffic Volume.

[b] LOS = Level of Service.

Source: Fehr & Peers 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 11-20 through Table 11-25. Appendix I contains the corresponding calculation sheets. The LOS calculations indicate that the addition of project-generated traffic does not degrade freeway operations to an unacceptable level at any of the study facilities.

Table 11-20. Mainline Levels of Service—Existing Plus Evans Estates Conditions

			Existing No Project		Existing Plus Evans Estates		
Travel Direction	Segment	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	16.7	B	17.0	B	No
		PM	28.4	D	29.7	D	
	Airport Way to Union Rd.	AM	17.4	B	17.7	B	No
		PM	26.3	D	27.5	D	
	Union Rd. to Main St.	AM	18.4	C	18.7	C	No
		PM	24.0	C	25.0	C	
	Main St. to SR 99	AM	17.4	B	17.7	B	No
		PM	20.9	C	21.1	C	
Westbound SR 120	SR 99 to Main St.	AM	21.4	C	21.5	C	No
		PM	20.0	C	20.4	C	
	Main St. to Union Rd.	AM	23.3	C	24.1	C	No
		PM	21.5	C	22.0	C	
	Union Rd. to Airport Way	AM	24.4	C	25.4	C	No
		PM	19.8	C	20.5	C	
	Airport Way to Yosemite Ave.	AM	26.3	D	27.3	D	No
		PM	19.2	C	19.7	C	
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	28.3	D	28.3	D	No
		PM	28.5	D	28.8	D	
	Austin Rd. to SR 120 (weaving section)	AM	1,213	C	1,218	C	No
		PM	1,322	C	1,326	C	
	SR 120 to Yosemite Ave. (weaving section PM only)	AM	18.3	C	18.6	C	No
		PM	1,405	D	1,422	D	
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	1,418	D	1,431	D	No
		PM	1,371	D	1,411	D	
	SR 120 to Austin Rd.	AM	25.2	C	25.2	C	No
		PM	27.2	D	27.2	D	
	Austin Rd. to Jack Tone Rd.	AM	26.1	D	26.3	D	No
		PM	29.2	D	29.4	D	

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-21. Ramp Junction Levels of Service—Existing Plus Evans Estates Conditions

				Existing		Existing Plus Evans Estates		
Travel Direction	Ramp	Merge/ Diverge	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	23.5	C	23.8	C	No
			PM	29.7	D	30.8	D	
		Merge (on-ramp)	AM	19.9	B	20.2	C	No
			PM	23.4	C	23.6	C	
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	26.9	C	27.0	C	No
			PM	25.3	C	25.7	C	
		Merge (on-ramp)	AM	25.7	C	26.4	C	No
			PM	23.8	C	24.3	C	
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	32.4	D	32.5	D	No
			PM	32.5	D	32.7	D	
		Merge (weave)	AM	1,213	C	1,218	C	No
			PM	1,322	C	1,326	C	
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	29.8	D	29.9	D	No
			PM	31.4	D	31.4	D	
		Merge (on-ramp)	AM	26.3	C	26.5	C	No
			PM	29.2	D	29.4	D	

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Table 11-22. Mainline Levels of Service—Existing Plus Pillsbury Estates Conditions

			Existing No Project		Existing Plus Pillsbury Estates		
Travel Direction	Segment	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	16.7	B	16.9	B	No
		PM	28.4	D	29.0	D	
	Airport Way to Union Rd.	AM	17.4	B	17.6	B	No
		PM	26.3	D	26.8	D	
	Union Rd. to Main St.	AM	18.4	C	18.5	C	No
		PM	24.0	C	24.5	C	
	Main St. to SR 99	AM	17.4	B	17.4	B	No
		PM	20.9	C	20.9	C	
Westbound SR 120	SR 99 to Main St.	AM	21.4	C	21.4	C	No
		PM	20.0	C	20.0	C	
	Main St. to Union Rd.	AM	23.3	C	23.7	C	No
		PM	21.5	C	21.7	C	
	Union Rd. to Airport Way	AM	24.4	C	24.9	C	No
		PM	19.8	C	20.1	C	
	Airport Way to Yosemite Ave.	AM	26.3	D	26.7	D	No
		PM	19.2	C	19.4	C	
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	28.3	D	28.3	D	No
		PM	28.5	D	28.7	D	
	Austin Rd. to SR 120 (weaving section)	AM	1,213	C	1,224	C	No
		PM	1,322	C	1,333	C	
	SR 120 to Yosemite Ave. (weaving section)	AM	18.3	C	18.4	C	No
		PM	1,405	D	1,409	C	
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	1,418	D	1,421	C	No
		PM	1,371	D	1,379	C	
	SR 120 to Austin Rd.	AM	25.2	C	25.2	C	No
		PM	27.2	D	27.3	D	
	Austin Rd. to Jack Tone Rd.	AM	26.1	D	26.2	D	No
		PM	29.2	D	29.3	D	

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-23. Ramp Junction Levels of Service—Existing Plus Pillsbury Estates Conditions

				Existing		Existing Plus Pillsbury Estates		
Travel Direction	Ramp	Merge/ Diverge	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	23.5	C	23.6	C	No
			PM	29.7	D	30.2	D	
		Merge (on-ramp)	AM	19.9	B	19.9	B	No
			PM	23.4	C	23.4	C	
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	26.9	C	26.9	C	No
			PM	25.3	C	25.3	C	
		Merge (on-ramp)	AM	25.7	C	26.0	C	No
			PM	23.8	C	24.0	C	
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	32.4	D	32.5	D	No
			PM	32.5	D	32.6	D	
		Merge (weave)	AM	1,213	C	1,224	C	No
			PM	1,322	C	1,333	C	
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	29.8	D	29.9	D	No
			PM	31.4	D	31.5	D	
		Merge (on-ramp)	AM	26.3	C	26.4	C	No
			PM	29.2	D	29.3	D	

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Table 11-24. Mainline Levels of Service—Existing Plus Both Projects Conditions

			Existing No Project		Existing Plus Both Projects		
Travel Direction	Segment	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	16.7	B	17.1	B	No
		PM	28.4	D	30.4	D	
	Airport Way to Union Rd.	AM	17.4	B	17.9	C	No
		PM	26.3	D	28.1	D	
	Union Rd. to Main St.	AM	18.4	C	18.8	C	No
		PM	24.0	C	25.5	C	
	Main St. to SR 99	AM	17.4	B	17.8	C	No
		PM	20.9	C	21.2	C	
Westbound SR 120	SR 99 to Main St.	AM	21.4	C	21.6	C	No
		PM	20.0	C	20.4	C	
	Main St. to Union Rd.	AM	23.3	C	24.6	C	No
		PM	21.5	C	22.3	C	
	Union Rd. to Airport Way	AM	24.4	C	25.9	C	No
		PM	19.8	C	20.8	C	
	Airport Way to Yosemite Ave.	AM	26.3	D	27.8	D	No
		PM	19.2	C	20.0	C	
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	28.3	D	28.4	D	No
		PM	28.5	D	29.0	D	
	Austin Rd. to SR 120 (weaving section)	AM	1,213	C	1,229	C	No
		PM	1,322	C	1,333	C	
	SR 120 to Yosemite Ave. (weaving section)	AM	18.3	C	18.7	C	No
		PM	1,405	D	1,427	D	
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	1,418	D	1,434	D	No
		PM	1,371	D	1,419	D	
	SR 120 to Austin Rd.	AM	25.2	C	25.3	C	No
		PM	27.2	D	27.3	D	
	Austin Rd. to Jack Tone Rd.	AM	26.1	D	26.4	D	No
		PM	29.2	D	29.4	D	

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-25. Ramp Junction Levels of Service—Existing Plus Both Projects Conditions

				Existing		Existing Plus Both Projects		
Travel Direction	Ramp	Merge/ Diverge	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	23.5	C	23.9	C	No
			PM	29.7	D	31.3	D	
		Merge (on-ramp)	AM	19.9	B	20.2	C	No
			PM	23.4	C	23.6	C	
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	26.9	C	27.0	C	No
			PM	25.3	C	25.7	C	
		Merge (on-ramp)	AM	25.7	C	26.8	C	No
			PM	23.8	C	24.5	C	
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	32.4	D	32.5	D	No
			PM	32.5	D	32.9	D	
		Merge (weave)	AM	1,213	C	1,229	C	No
			PM	1,322	C	1,333	C	
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	29.8	D	29.9	D	No
			PM	31.4	D	31.5	D	
		Merge (on-ramp)	AM	26.3	C	26.7	C	No
			PM	29.2	D	29.5	D	

a AM = morning peak hour, PM = evening peak hour

b Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Bicycle and Pedestrian Facilities

Engineering drawings submitted to the City and contained in Appendix I show typical roadway cross sections within each of the project sites. In both cases, sidewalks are provided on all internal streets and along the fronting portions of Main Street, McKinley Avenue, and Pillsbury Road. No bicycle facilities are shown for either development.

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 Evans Estates site, Pillsbury Estates site, and overall project site were added to Cumulative No-Project turning-movement volumes (Figures 11-6A and 11-6B).

Intersections & Peak-Hour Signal Warrants

Intersection LOS was calculated with project-generated traffic to evaluate the intersection operations and identify potential project impacts. Appendix I contains the corresponding calculation sheets.

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 will also meet the warrant under Plus Project Conditions).

Figures 11-11A and 11-11B present the peak-hour turning movement volumes and land configurations under Cumulative Plus Evans Estates Conditions. Table 11-26 presents 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:

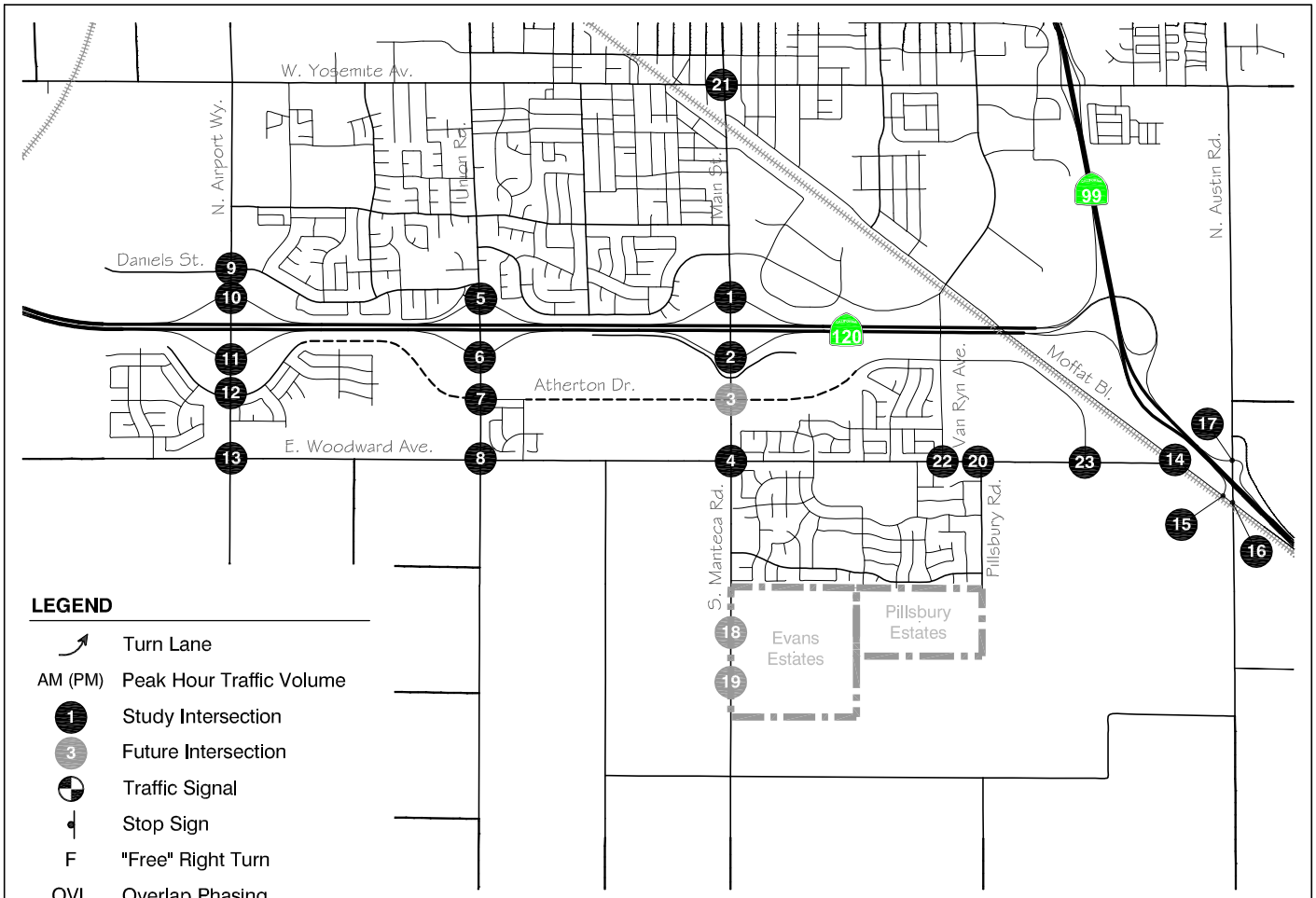
- Main Street and SR 120 WB ramps (AM and PM peak hour),
- Main Street and SR 120 EB ramps (AM and PM peak hour),
- Main Street and Atherton Drive (AM and PM peak hour),
- Main Street and Woodward Avenue (AM and PM peak hour),
- Union Road and SR 120 WB ramps (AM and PM peak hour),
- Union Road and SR 120 EB ramps (AM and PM peak hour),
- Union Road and Atherton Drive (AM and PM peak hour),
- Union Road and Woodward Avenue (AM and PM peak hour),
- Airport Way and Daniels Street (AM and PM peak hour),
- Airport Way and SR 120 WB ramps (AM and PM peak hour),
- Airport Way and SR 120 EB ramps (AM and PM peak hour),
- Airport Way and Atherton Road (AM and PM peak hour),
- Airport Way and Woodward Avenue (AM and PM peak hour),
- Woodward Avenue and Moffat Boulevard (PM peak hour),
- Moffat Boulevard and SR 99 SB off-ramp (AM and PM peak hour),
- Austin Road and Moffat Boulevard/SR 99 SB on-ramp (AM and PM peak hour),

- Austin Road and SR 99 NB ramps (AM and PM peak hour),
- Main Street and Yosemite Avenue (PM peak hour), and
- Woodward Avenue and Van Ryn Avenue (PM peak hour).

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for Cumulative Plus Evans Estates Conditions. Table 11-26 presents the results.

Table 11-26. Intersection Levels of Service and Signal Warrants—Cumulative Plus Evans Estates Conditions

Intersection	Peak Hour[a]	Cumulative		Cumulative Plus Evans Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Main St./SR 120 WB ramps	AM	**69**	**E**	**91**	**F**	N/A	**Yes**
	PM	**>200d**	**F**	**>200**	**F**		
Main St./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./Atherton Dr.	AM	**111**	**F**	**156**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./SR 120 EB ramps	AM	**143**	**F**	**146**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Daniels St.	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**

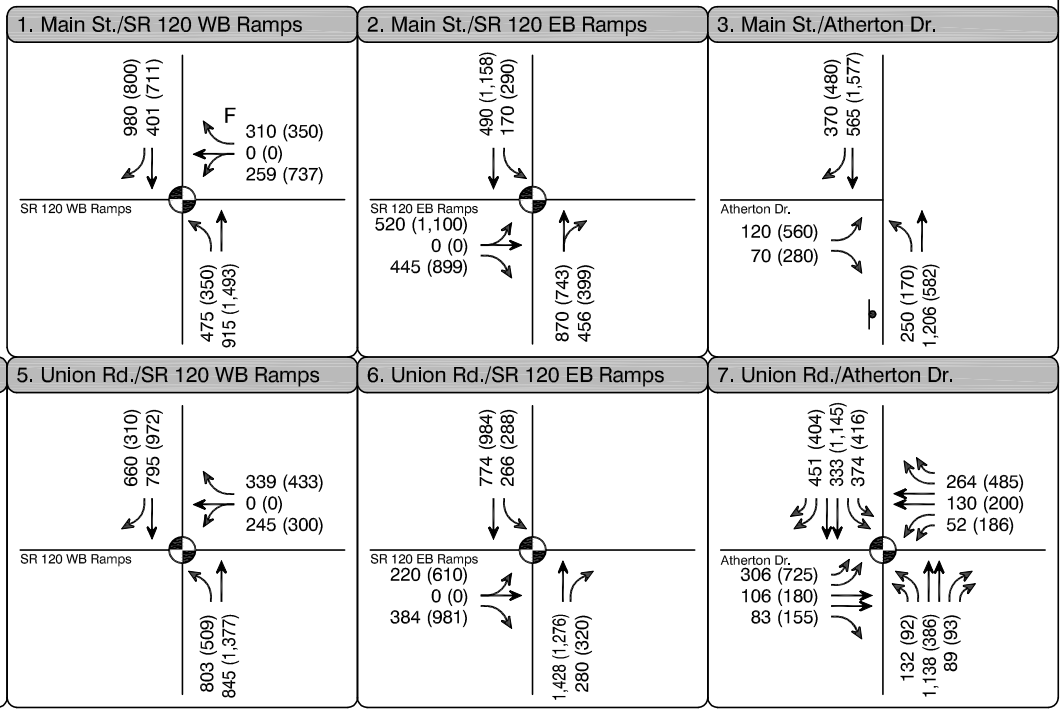


LEGEND

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- 3 Future Intersection
- Traffic Signal
- Stop Sign
- F "Free" Right Turn
- OVL Overlap Phasing
- Project Site
- Future Road

N

NOT TO SCALE

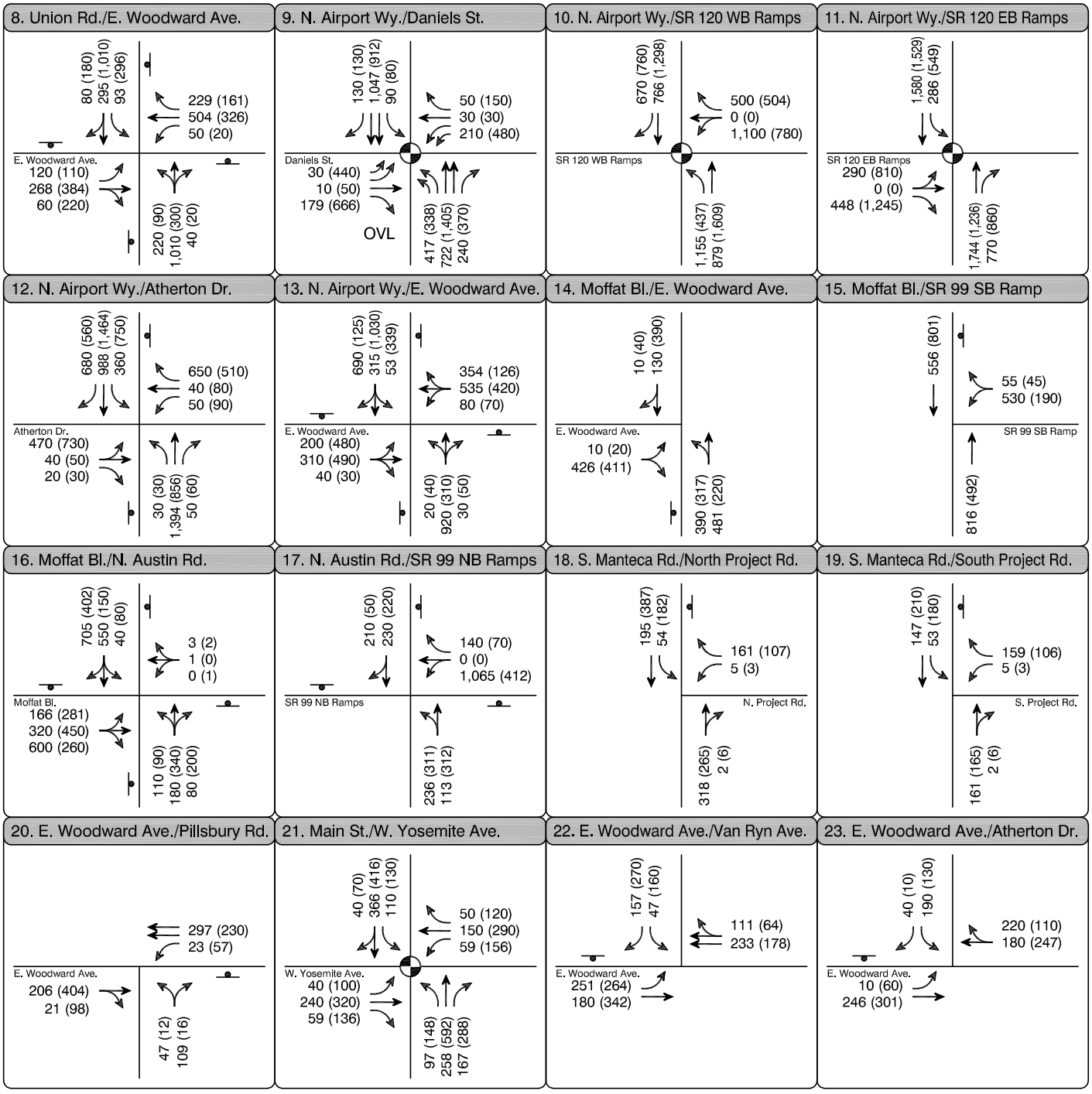


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS EVANS ESTATES PROJECT CONDITIONS

FIGURE 11-11A



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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS EVANS ESTATES PROJECT CONDITIONS

FIGURE 11-11B

Intersection	Peak Hour[a]	Cumulative		Cumulative Plus Evans Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
	PM	**>200**	**F**	**>200**	**F**		
Woodward Ave./Moffat Blvd.	AM	**26**	**D**	**22**	C	**Yes**	**Yes**
	PM	**118**	**F**	**>200**	**F**		
Moffat Blvd./SR 99 SB off-ramp	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	**89**	**F**	**90**	**F**	**Yes**	**Yes**
	PM	**141**	**F**	**157**	**F**		
Austin Rd./SR 99 NB ramps	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	34	D	**56**	**F**		
S. Manteca Rd./N. Project Rd.	AM	Does not exist in Cumulative No-Project Scenario.		12	B	No	No
	PM			11	B		
S. Manteca Rd./S. Project Rd.	AM			10	B	No	No
	PM			10	B		
Woodward Ave./Pillsbury Rd.	AM	11	B	12	B	No	No
	PM	12	B	13	B		
Main St./Yosemite Ave.	AM	30	C	31	C	N/A	**Yes**
	PM	**84**	**F**	**93**	**F**		
Woodward Ave./Van Ryn Ave.	AM	14	B	14	B	**Yes**	**Yes**
	PM	**40**	**E**	**49**	**E**		
Woodward Ave./Atherton Dr.	AM	14	B	14	B	No	No
	PM	15	B	16	C		

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak hour signal warrant.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

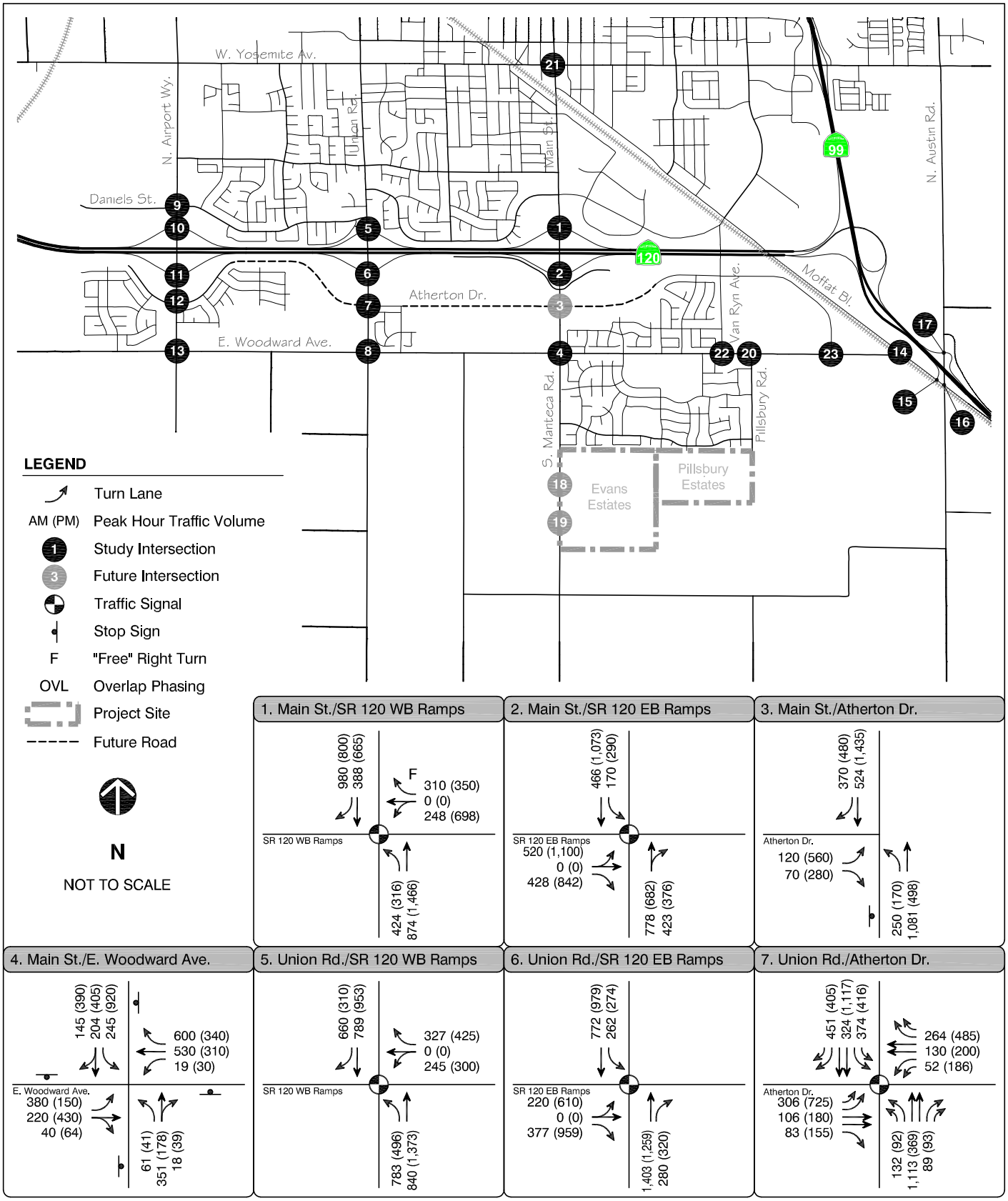
[d] > 200 seconds of delay = At these intersections, the traffic analysis software indicates delays in excess of 200 seconds. Exact delay estimates are not given, because delays in excess of 200 seconds are outside of the range of calculation of the software.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

Figures 11-12A and 11-12B present the peak-hour turning movement volumes and land configurations under Cumulative Plus Pillsbury Estates Conditions. Table 11-27 presents 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 WB ramps (AM and PM peak hour),
- Main Street and SR 120 EB ramps (AM and PM peak hour),
- Main Street and Atherton Drive (AM and PM peak hour),
- Main Street and Woodward Avenue (AM and PM peak hour),
- Union Road and SR 120 WB ramps (AM and PM peak hour),
- Union Road and SR 120 EB ramps (AM and PM peak hour),
- Union Road and Atherton Drive (AM and PM peak hour),
- Union Road and Woodward Avenue (AM and PM peak hour),
- Airport Way and Daniels Street (AM and PM peak hour),
- Airport Way and SR 120 WB ramps (AM and PM peak hour),
- Airport Way and SR 120 EB ramps (AM and PM peak hour),
- Airport Way and Atherton Road (AM and PM peak hour),
- Airport Way and Woodward Avenue (AM and PM peak hour),
- Woodward Avenue and Moffat Boulevard (PM peak hour),
- Moffat Boulevard and SR 99 SB off-ramp (AM and PM peak hour),
- Austin Road and Moffat Boulevard/SR 99 SB on-ramp (AM and PM peak hour),
- Austin Road and SR 99 NB ramps (AM and PM peak hour),
- Main Street and Yosemite Avenue (PM peak hour), and
- Woodward Avenue and Van Ryn Avenue (PM peak hour).

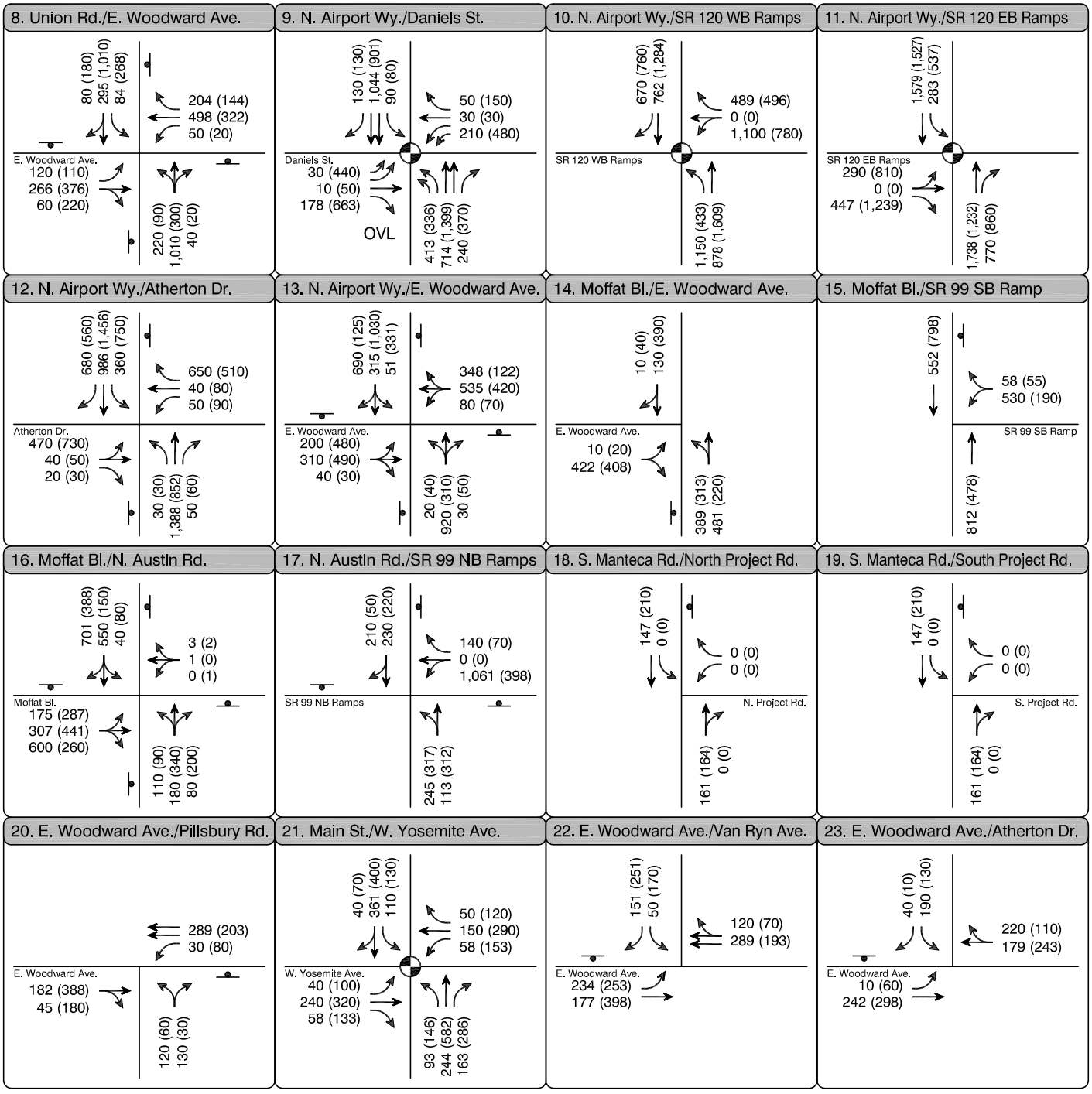


PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PILLSBURY ESTATES PROJECT CONDITIONS

FIGURE 11-12A

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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PILLSBURY ESTATES PROJECT CONDITIONS

FIGURE 11-12B

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for Cumulative Plus Pillsbury Estates Conditions. Table 11-27 presents the results.

Table 11-27. Intersection Levels of Service and Signal Warrants—Cumulative Plus Pillsbury Estates

Intersection	Peak Hour[a]	Cumulative		Cumulative Plus Pillsbury Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Main St./SR 120 WB ramps	AM	**69**	**E**	**69**	**E**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./Atherton Dr.	AM	**111**	**F**	**149**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./SR 120 EB ramps	AM	**143**	**F**	**143**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Daniels St.	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Woodward Ave./Moffat Blvd.	AM	**26**	**D**	15	C	**Yes**	**Yes**
	PM	**118**	**F**	**>200**	**F**		
Moffat Blvd./SR 99 SB off-ramp	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**

Intersection	Peak Hour[a]	Cumulative		Cumulative Plus Pillsbury Estates		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
	PM	**>200**	**F**	**>200**	**F**		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	**89**	**F**	**90**	**F**	**Yes**	**Yes**
	PM	**141**	**F**	**152**	**F**		
Austin Rd./SR 99 NB ramps	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	34	D	**39**	**E**		
S. Manteca Rd./N. Project Rd.	AM						
	PM						
S. Manteca Rd./S. Project Rd.	AM	Does not exist Under Cumulative Plus Pillsbury Estates Scenario.					
	PM						
Woodward Ave./Pillsbury Rd.	AM	11	B	13	B	No	No
	PM	12	B	15	C		
Main St./Yosemite Ave.	AM	30	C	30	C	N/A	**Yes**
	PM	**84**	**F**	**88**	**F**		
Woodward Ave./Van Ryn Ave.	AM	14	B	15	B	**Yes**	**Yes**
	PM	**40**	**E**	**65**	**F**		
Woodward Ave./Atherton Dr.	AM	14	B	14	B	No	No
	PM	15	B	16	C		

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak hour signal warrant.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

[d] > 200 seconds of delay = At these intersections the traffic analysis software indicates delays in excess of 200 seconds. Exact delay estimates are not given, because delays in excess of 200 seconds are outside of the range of calculation of the software.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

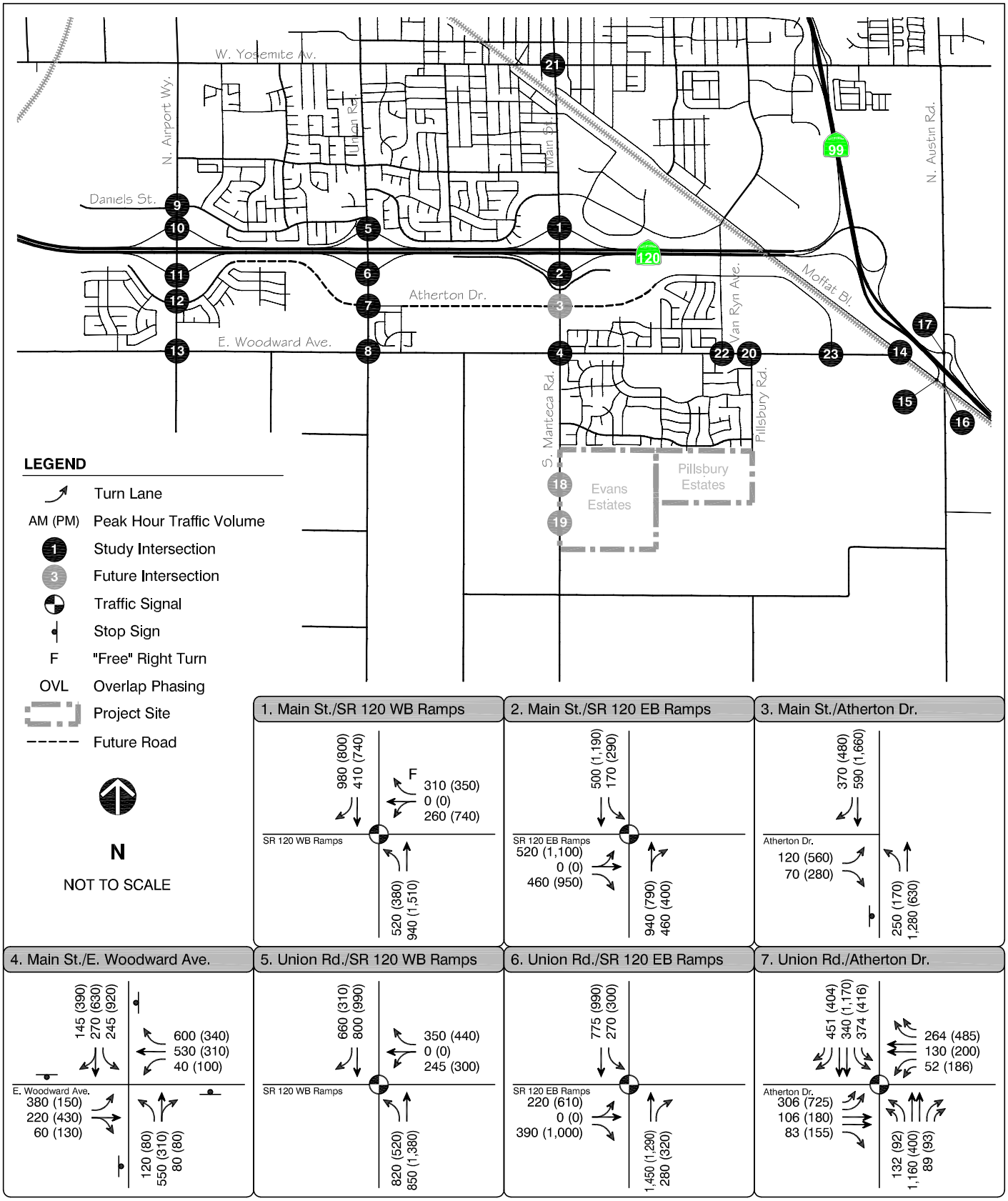
Figures 11-13A and 11-13B present the peak-hour turning movement volumes and land configurations under Cumulative Plus Both Conditions. Table 11-28 presents the results of the intersection LOS calculations, which indicates that 19 of the 23 study intersections are expected to operate at unacceptable conditions, as listed below:

- Main Street and SR 120 WB ramps (AM and PM peak hour),
- Main Street and SR 120 EB ramps (AM and PM peak hour),
- Main Street and Atherton Drive (AM and PM peak hour),
- Main Street and Woodward Avenue (AM and PM peak hour),
- Union Road and SR 120 WB ramps (AM and PM peak hour),
- Union Road and SR 120 EB ramps (AM and PM peak hour),
- Union Road and Atherton Drive (AM and PM peak hour),
- Union Road and Woodward Avenue (AM and PM peak hour),
- Airport Way and Daniels Street (AM and PM peak hour),
- Airport Way and SR 120 WB ramps (AM and PM peak hour),
- Airport Way and SR 120 EB ramps (AM and PM peak hour),
- Airport Way and Atherton Road (AM and PM peak hour),
- Airport Way and Woodward Avenue (AM and PM peak hour),
- Woodward Avenue and Moffat Boulevard (PM peak hour),
- Moffat Boulevard and SR 99 SB off-ramp (AM and PM peak hour),
- Austin Road and Moffat Boulevard/SR 99 SB on-ramp (AM and PM peak hour),
- Austin Road and SR 99 NB ramps (AM and PM peak hour),
- Main Street and Yosemite Avenue (PM peak hour), and
- Woodward Avenue and Van Ryn Avenue (PM peak hour).

In addition to the LOS analysis at the study intersections, a peak-hour signal warrant analysis was conducted for Cumulative Plus Both Conditions. Table 11-28 presents the results.

Table 11-28. Intersection Levels of Service and Signal Warrants—Cumulative Plus Both Projects

Intersection	Peak Hour[a]	Cumulative		Cumulative Plus Both Projects		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
Main St./SR 120 WB ramps	AM	**69**	**E**	**94**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./Atherton Dr.	AM	**111**	**F**	**163**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Main St./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./SR 120 EB ramps	AM	**143**	**F**	**145**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Union Rd./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Daniels St.	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	N/A	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Airport Wy./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**>200**	**F**	**>200**	**F**		
Woodward Ave./Moffat Blvd.	AM	**26**	**D**	19	C	**Yes**	**Yes**
	PM	**118**	**F**	**>200**	**F**		
Moffat Blvd./SR 99 SB off-ramp	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**

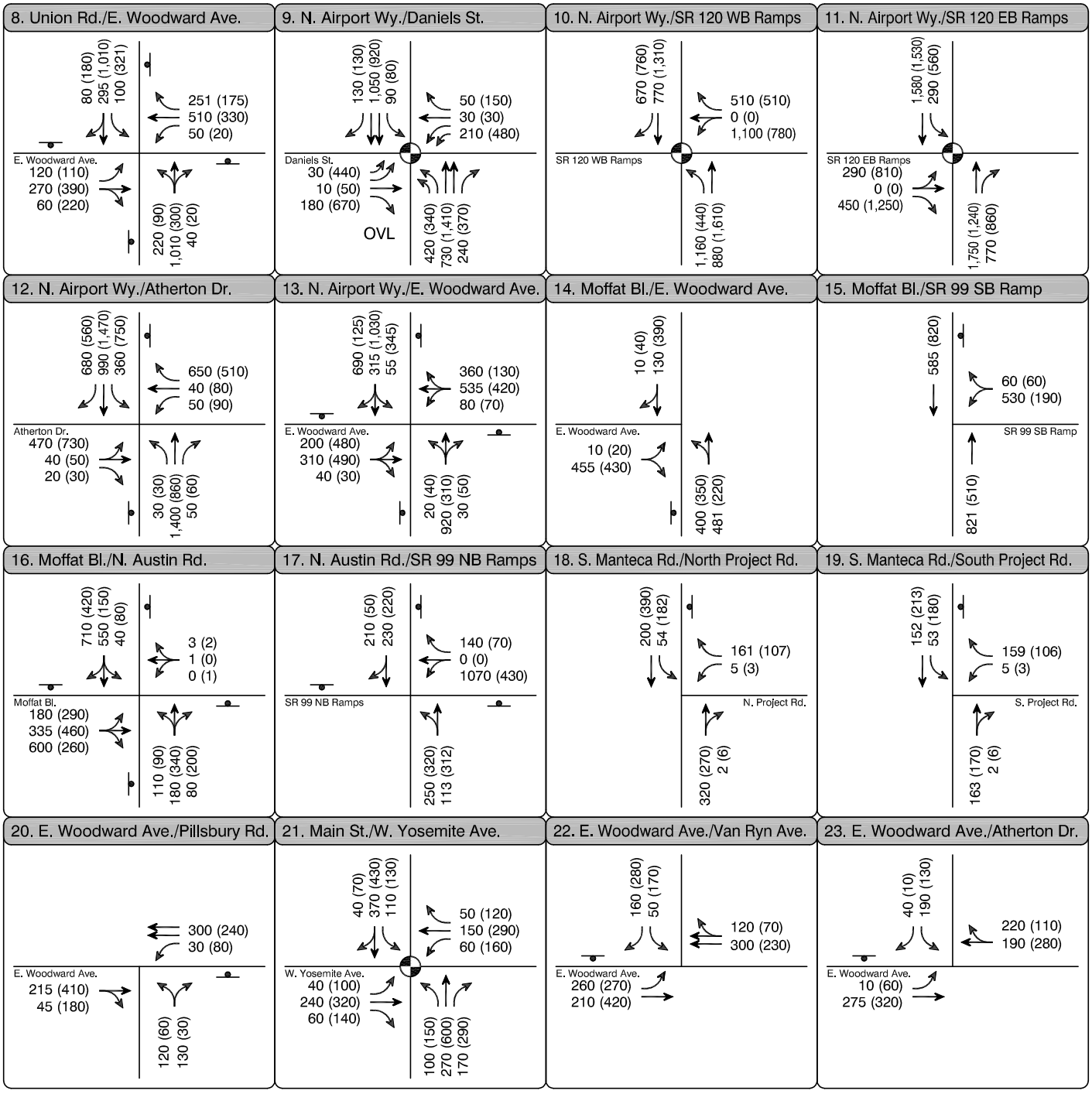


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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS BOTH PROJECTS CONDITIONS

Feb 05, 2009 SW
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FIGURE 11-13A



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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-13B

Intersection	Peak Hour[a]	Cumulative		Cumulative Plus Both Projects		Meets Warrant	Significant Impact
		Delay[b]	LOS[c]	Delay[b]	LOS[c]		
	PM	**>200**	**F**	**>200**	**F**		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	**89**	**F**	**89**	**F**	**Yes**	**Yes**
	PM	**141**	**F**	**160**	**F**		
Austin Rd./SR 99 NB ramps	AM	**>200**	**F**	**>200**	**F**	**Yes**	**Yes**
	PM	**34**	**D**	**52**	**F**		
S. Manteca Rd./N. Project Rd.	AM	Does not exist in Cumulative No-Project Scenario.		12	B	No	No
	PM			11	B		
S. Manteca Rd./S. Project Rd.	AM			10	B	No	No
	PM			10	B		
Woodward Ave./Pillsbury Rd.	AM	11	B	14	B	No	No
	PM	12	B	16	C		
Main St./Yosemite Ave.	AM	30	C	31	C	N/A	**Yes**
	PM	**84**	**F**	**97**	**F**		
Woodward Ave./Van Ryn Ave.	AM	14	B	16	C	**Yes**	**Yes**
	PM	**40**	**E**	**80**	**F**		
Woodward Ave./Atherton Dr.	AM	14	B	15	B	No	No
	PM	15	B	16	C		

Note: **Bold** highlighting denotes intersections with unacceptable operations per the relevant jurisdiction's LOS threshold. If the intersection is unsignalized, unacceptable operations also require meeting the peak hour signal warrant.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

[d] > 200 seconds of delay = At these intersections the traffic analysis software indicates delays in excess of 200 seconds. Exact delay estimates are not given, because delays in excess of 200 seconds are outside of the range of calculation of the software.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

Roadway Segments

Table 11-29 summarizes the results of the LOS analysis for Cumulative Plus Evans Estates Conditions. The following roadway segments are expected to operate at an unacceptable LOS:

- Main Street between SR 120 WB ramps and Woodward Avenue,
- Union Road between SR 120 WB ramps and Woodward Avenue,
- Airport Way between Daniels Street and Woodward Avenue,
- Woodward Avenue between Airport Way and Main Street, and
- Moffat Boulevard between Woodward Avenue and Austin Road.

Table 11-29. Roadway Segment Levels of Service—Cumulative Plus Evans Estates Conditions

		Cumulative No-Project		Cumulative Plus Evans		
Roadway Segment	Lanes	ADT[a]	LOS[b]	ADT[a]	LOS[b]	Significant Impact
Main St. between Yosemite Ave. and SR 120	4	21,395	C	22,210	C	No
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	**24,595**	**F**	**26,705**	**F**	**Yes**
Main St. between SR 120 and Atherton Dr.	2	**24,185**	**F**	**27,300**	**F**	**Yes**
Main St. between Atherton Dr. and Woodward Ave.	2	**20,390**	**F**	**23,500**	**F**	**Yes**
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	5,150	C	10,155	C	No
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	3,335	C	5,905	C	No
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	**28,600**	**F**	**29,230**	**F**	**Yes**
Union Rd. between SR 120 and Atherton Dr.	2	**31,400**	**F**	**32,135**	**F**	**Yes**
Union Rd. between Atherton Dr. and Woodward Ave.	2	**18,685**	**F**	**19,420**	**F**	**Yes**
Airport Way between Daniels St. and SR 120	4	**34,565**	**F**	**34,930**	**F**	No
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	**39,850**	**F**	**40,120**	**F**	No
Airport Way between SR 120 and Atherton Dr.	2	**46,870**	**F**	**47,060**	**F**	No
Airport Way between Atherton Dr. and Woodward Ave.	2	**24,670**	**F**	**24,860**	**F**	No
Woodward Ave. between Airport Way and Union Rd.	2	**13,545**	**D**	**13,735**	**D**	No
Woodward Ave. between Union Rd. and Main St.	2	**12,180**	**D**	**13,100**	**D**	**Yes**
Woodward Ave. between Main St. and Van Ryn Ave.	4	12,960	C	13,905	C	No
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	6,060	C	6,575	C	No
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	5,605	C	6,120	C	No
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	7,605	C	8,120	C	No

Roadway Segment	Lanes	Cumulative No-Project ADT[a]	Cumulative No-Project LOS[b]	Cumulative Plus Evans ADT[a]	Cumulative Plus Evans LOS[b]	Significant Impact
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	**13,310**	**D**	**13,825**	**D**	**Yes**
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	**16,440**	**F**	**16,925**	**F**	**Yes**
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	14,250	D	14,495	D	No

Note: **Bold** highlighting denotes roadway segments with unacceptable operations.

[a] ADT = Average Daily Traffic Volume

[b] LOS = Level of Service

Source: Fehr & Peers 2008.

Table 11-30 summarizes the results of the LOS analysis for Cumulative Plus Pillsbury Estates Conditions. The following roadway segments are expected to operate at an unacceptable LOS:

- Main St. between SR 120 WB ramps and Woodward Avenue,
- Union Road between SR 120 WB ramps and Woodward Avenue,
- Airport Way between Daniels Street and Woodward Avenue,
- Woodward Avenue between Airport Way and Main Street,
- Moffat Boulevard between Woodward Avenue and Austin Road, and
- Austin Road between SR 99 NB ramps and Moffat Boulevard.

Table 11-30. Roadway Segment Levels of Service—Cumulative Plus Pillsbury Estates Conditions

Roadway Segment	Lanes	Cumulative No-Project ADT[a]	Cumulative No-Project LOS[b]	Cumulative Plus Pillsbury ADT[a]	Cumulative Plus Pillsbury LOS[b]	Significant Impact
Main St. between Yosemite Ave. and SR 120	4	21,395	C	22,550	C	No
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	**24,595**	**F**	**27,500**	**F**	**Yes**
Main St. between SR 120 and Atherton Dr.	2	**24,185**	**F**	**28,450**	**F**	**Yes**
Main St. between Atherton Dr. and Woodward Ave.	2	**20,390**	**F**	**24,650**	**F**	**Yes**
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	5,150	C	10,230	C	No
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	3,335	C	5,980	C	No
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	**28,600**	**F**	**29,525**	**F**	**Yes**
Union Rd. between SR 120 and Atherton Dr.	2	**31,400**	**F**	**32,475**	**F**	**Yes**
Union Rd. between Atherton Dr. and Woodward Ave.	2	**18,685**	**F**	**19,760**	**F**	**Yes**

Roadway Segment	Lanes	Cumulative No-Project ADT[a]	Cumulative No-Project LOS[b]	Cumulative Plus Pillsbury ADT[a]	Cumulative Plus Pillsbury LOS[b]	Significant Impact
Airport Way between Daniels St. and SR 120	4	**34,565**	**F**	**35,100**	**F**	No
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	**39,850**	**F**	**40,250**	**F**	No
Airport Way between SR 120 and Atherton Dr.	2	**46,870**	**F**	**47,150**	**F**	No
Airport Way between Atherton Dr. and Woodward Ave.	2	**24,670**	**F**	**24,950**	**F**	No
Woodward Ave. between Airport Way and Union Rd.	2	**13,545**	**D**	**13,825**	**D**	No
Woodward Ave. between Union Rd. and Main St.	2	**12,180**	**D**	**13,530**	**D**	Yes
Woodward Ave. between Main St. and Van Ryn Ave.	4	12,960	C	15,400	C	No
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	6,060	C	7,850	C	No
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	5,605	C	6,575	C	No
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	7,605	C	8,575	C	No
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	**13,310**	**D**	**14,280**	**D**	**Yes**
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	**16,440**	**F**	**17,280**	**F**	**Yes**
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	**14,250**	**D**	**14,725**	**E**	**Yes**

Note: **Bold** highlighting denotes roadway segments with unacceptable operations.

[a] ADT = Average Daily Traffic Volume

[b] LOS = Level of Service

Source: Fehr & Peers 2008.

Table 11-31 summarizes the results of the LOS analysis for Cumulative Plus Both Projects Conditions. The following roadway segments are expected to operate at an unacceptable LOS:

- Main Street between SR 120 WB ramps and Woodward Avenue,
- Union Road between SR 120 WB ramps and Woodward Avenue,
- Airport Way between Daniels Street and Woodward Avenue,
- Woodward Avenue between Airport Way and Main Street,
- Moffat Boulevard between Woodward Avenue and Austin Road, and
- Austin Road between SR 99 NB ramps and Moffat Boulevard.

Table 11-31. Roadway Segment Levels of Service—Cumulative Plus Both Projects Conditions

Roadway Segment	Lanes	Cumulative No-Project		Cumulative Plus Both		Significant Impact
		ADT[a]	LOS[b]	ADT[a]	LOS[b]	
Main St. between Yosemite Ave. and SR 120	4	21,395	C	22,550	C	No
Main St. between SR 120 WB ramps and SR 120 EB ramps	2	**24,595**	**F**	**27,500**	**F**	**Yes**
Main St. between SR 120 and Atherton Dr.	2	**24,185**	**F**	**28,450**	**F**	**Yes**
Main St. between Atherton Dr. and Woodward Ave.	2	**20,390**	**F**	**24,650**	**F**	**Yes**
Manteca Rd. between Woodward Ave. and N. Project Rd.	2	5,150	C	10,230	C	No
Manteca Rd. between N. Project Rd. and S. Project Rd.	2	3,335	C	5,980	C	No
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	2	**28,600**	**F**	**29,525**	**F**	**Yes**
Union Rd. between SR 120 and Atherton Dr.	2	**31,400**	**F**	**32,475**	**F**	**Yes**
Union Rd. between Atherton Dr. and Woodward Ave.	2	**18,685**	**F**	**19,760**	**F**	**Yes**
Airport Way between Daniels St. and SR 120	4	**34,565**	**F**	**35,100**	**F**	No
Airport Way between SR120 WB ramps and SR 120 EB ramps	2	**39,850**	**F**	**40,250**	**F**	No
Airport Way between SR 120 and Atherton Dr.	2	**46,870**	**F**	**47,150**	**F**	No
Airport Way between Atherton Dr. and Woodward Ave.	2	**24,670**	**F**	**24,950**	**F**	No
Woodward Ave. between Airport Way and Union Rd.	2	**13,545**	**D**	**13,825**	**D**	No
Woodward Ave. between Union Rd. and Main St.	2	**12,180**	**D**	**13,530**	**D**	**Yes**
Woodward Ave. between Main St. and Van Ryn Ave.	4	12,960	C	15,400	C	No
Woodward Ave. between Van Ryn Ave. and Pillsbury Rd.	2	6,060	C	7,850	C	No
Woodward Ave. between Pillsbury Rd. and Atherton Dr.	2	5,605	C	6,575	C	No
Woodward Ave. between Atherton Dr. and Moffat Blvd.	2	7,605	C	8,575	C	No
Moffat Blvd. between Woodward Ave. and SR 99 SB off-ramp	2	**13,310**	**D**	**14,280**	**D**	**Yes**
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	2	**16,440**	**F**	**17,280**	**F**	**Yes**
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	2	14,250	D	**14,725**	**E**	**Yes**

Note: **Bold** highlighting denotes roadway segments with unacceptable operations.
[a] ADT = Average Daily Traffic Volume
[b] LOS = Level of Service
Source: Fehr & Peers 2008.

Freeway Mainline, Off-Ramp Diverge, and On-Ramp Merge Segments

Freeway mainline LOS analysis was conducted under Cumulative Plus Project Conditions, and the results are summarized in Tables 11-32, 11-34, and 11-36. The results for the freeway ramp merge/diverge LOS analysis under Cumulative Plus Project conditions are summarized in Tables 11-33, 11-35, and 11-37. Appendix I contains the corresponding calculation sheets.

Table 11-32 summarizes the results of the freeway mainline LOS analysis under Cumulative Plus Evans Estates Conditions, and Table 11-33 summarizes the results of the freeway ramp merge/diverge LOS analysis. Based on the results in Table 11-32, the following freeway mainline segments are expected to operate at LOS E or F under Cumulative Plus Evans Estates Conditions:

- SR 120 EB between Yosemite Avenue and Main Street (PM peak hour),
- SR 120 WB between Main Street and Yosemite Avenue (AM peak hour),
- SR 99 NB between Jack Tone Road and SR 120 (AM peak hour),
- SR 99 NB between Jack Tone Road and Yosemite Avenue (PM peak hour),
- SR 99 SB between Yosemite Avenue and SR 120 (AM peak hour), and
- SR 99 SB between Yosemite Avenue and Jack Tone Road (PM peak hour).

Under Cumulative Plus Evans Estates Conditions, the following freeway merge/diverge sections are expected to operate at LOS E or F:

- SR 120 EB Main Street off-ramp (PM peak hour),
- SR 120 WB Main Street on-ramp (AM peak hour),
- SR 99 NB Austin Road On- and off-ramps (AM and PM peak hour),
- SR 99 SB Austin Road off-ramp (AM and PM peak hour), and
- SR 99 SB Austin Road on-ramp (PM peak hour).

Table 11-32. Mainline Levels of Service—Cumulative Plus Evans Estates Conditions

Travel Direction	Segment	Peak Hour[a]	Cumulative No-Project		Cumulative Plus Evans Estates		Significant Impact
			Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	18.9	C	19.1	C	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Airport Way to Union Rd.	AM	20.6	C	20.8	C	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Union Rd. to Main St.	AM	20.3	C	20.5	C	**Yes**
		PM	**40.6**	**E**	**43.7**	**E**	
	Main St. to SR 99	AM	18.4	C	18.6	C	No
		PM	27.9	D	28.5	D	
Westbound SR 120	SR 99 to Main St.	AM	27.4	D	27.5	D	No
		PM	23.1	C	23.7	C	
	Main St. to Union Rd.	AM	**34.9**	**D**	**35.9**	**E**	**Yes**
		PM	23.6	C	24.3	C	
	Union Rd. to Airport Way	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	24.1	C	24.8	C	
	Airport Way to Yosemite Ave.	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	23.6	C	24.3	C	
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	**38.0**	**E**	**38.5**	**E**	
	Austin Rd. to SR 120 (weaving section)	AM	**1,971**	**F**	**1,975**	**F**	**Yes**
		PM	**1,837**	**E**	**1,841**	**E**	
	SR 120 to Yosemite Ave. (weaving section)	AM	1,121	C	1,135	C	Yes
		PM	**1,631**	**E**	**1,641**	**E**	
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	**1,696**	**E**	**1,700**	**E**	**Yes**
		PM	**2,205**	**F**	**2,217**	**F**	
	SR 120 to Austin Rd.	AM	33.7	D	33.7	D	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Austin Rd. to Jack Tone Rd.	AM	32.5	D	32.8	D	**Yes**
		PM	**>45**	**F**	**>45**	**F**	

Note: **Bold** highlighting denotes freeway mainline segments with unacceptable operations (LOS E or F) per Caltrans' Guide for Preparation of Traffic Impact Studies (California Department of Transportation 2004).

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method); results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-33. Ramp Junction Levels of Service—Cumulative Plus Evans Estates Conditions

				Cumulative No-Project		Cumulative Plus Evans Estates		
Travel Direction	Ramp	Merge/ Diverge	Peak Hour[a]	Density[b]	Level of Service	Density[b]	Level of Service	Significant Impact
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	27.1	C	27.4	C	**Yes**
			PM	**41.0**	**F**	**41.7**	**F**	
		Merge (on-ramp)	AM	20.5	C	20.8	C	No
			PM	29.2	D	29.3	D	
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	32.2	D	32.3	D	No
			PM	30.1	D	30.4	D	
		Merge (on-ramp)	AM	**35.1**	**E**	**35.8**	**E**	**Yes**
			PM	26.9	C	27.4	C	
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**41.5**	**F**	**41.5**	**F**	**Yes**
			PM	**37.0**	**E**	**37.2**	**E**	
		Merge (on-ramp)	AM	**1,971**	**F**	**1,975**	**F**	**Yes**
			PM	**1,837**	**E**	**1,841**	**E**	
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**35.6**	**E**	**35.7**	**E**	No
			PM	**44.0**	**F**	**44.0**	**F**	
		Merge (on-ramp)	AM	31.2	D	31.4	D	**Yes**
			PM	**47.3**	**F**	**47.5**	**F**	

Note: **Bold** highlighting denotes roadway segments with unacceptable operations.

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Table 11-34 summarizes the results of the freeway mainline LOS analyses under Cumulative Plus Pillsbury Estates Conditions, and Table 11-35 summarizes the results of the freeway ramp merge/diverge LOS analysis. Based on the results in Table 11-34, the following freeway mainline segments are expected to operate at LOS E or F under Cumulative Plus Pillsbury Estates Conditions:

- SR 120 EB between Yosemite Avenue and Main Street in the PM peak hour,
- SR 120 WB between Main Street and Yosemite Avenue in the AM peak hour,
- SR 99 NB between Jack Tone Road and SR 120 in the AM peak hour,
- SR 99 NB between Jack Tone Road and Yosemite Avenue in the PM peak hour,
- SR 99 SB between Yosemite Avenue and SR 120 in the AM peak hour, and

- SR 99 SB between Yosemite Avenue and Jack Tone Road in the PM peak hour.

Under Cumulative Plus Pillsbury Estates Conditions, the following freeway merge/diverge sections are expected to operate at LOS E or F:

- SR 120 EB Main Street off-ramp in the PM peak hour,
- SR 120 WB Main Street on-ramp in the AM peak hour,
- SR 99 NB Austin Road on- and off-ramps in both the AM and PM peak hours,
- SR 99 SB Austin Road off-ramp in both the AM and PM peak hour, and
- SR 99 SB Austin Road on-ramp in the PM peak hour.

Table 11-34. Mainline Levels of Service—Cumulative Plus Pillsbury Estates Conditions

			Cumulative No-Project		Cumulative Plus Pillsbury Estates		
Travel Direction	Segment	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	18.9	C	19.0	C	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Airport Way to Union Rd.	AM	20.6	C	20.7	C	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Union Rd. to Main St.	AM	20.3	C	20.4	C	**Yes**
		PM	**40.6**	**E**	**42.7**	**E**	
	Main St. to SR 99	AM	18.4	C	18.4	C	No
		PM	27.9	D	28.4	D	
Westbound SR 120	SR 99 to Main St.	AM	27.4	D	27.4	D	No
		PM	23.1	C	23.5	C	
	Main St. to Union Rd.	AM	34.9	D	**35.3**	**E**	**Yes**
		PM	23.6	C	24.1	C	
	Union Rd. to Airport Way	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	24.1	C	24.6	C	
	Airport Way to Yosemite Ave.	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	23.6	C	24.1	C	
Northbound SR 99	Jack Tone Rd. to Austin Rd.	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	**38.0**	**E**	**38.2**	**E**	
	Austin Rd. to SR 120 (weaving section)	AM	**1,971**	**F**	**1,982**	**F**	**Yes**
		PM	**1,837**	**E**	**1,844**	**E**	
	SR 120 to Yosemite Ave. (weaving section)	AM	1,121	C	1,125	C	No
		PM	**1,631**	**E**	**1,634**	**E**	
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	**1,696**	**E**	**1,698**	**E**	**Yes**
		PM	**2,205**	**F**	**2,210**	**F**	
	SR 120 to Austin Rd.	AM	33.7	D	33.7	D	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Austin Rd. to Jack Tone Rd.	AM	32.5	D	32.6	D	**Yes**
		PM	**>45**	**F**	**>45**	**F**	

Note: **Bold** highlighting denotes freeway mainline segments with unacceptable operations (LOS E or F) per Caltrans' Guide for the Preparation of Traffic Impact Studies (California Department of Transportation 2004).

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-35. Ramp Junction Levels of Service—Cumulative Plus Pillsbury Estates Conditions

				Cumulative No-Project		Cumulative Plus Pillsbury Estates		
Travel Direction	Ramp	Merge/ Diverge	Peak Hour[a]	Density[b]	Level of Service	Density[b]	Level of Service	Significant Impact
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	27.1	C	27.2	C	**Yes**
			PM	**41.0**	**F**	**41.3**	**F**	
		Merge (on-ramp)	AM	20.5	C	20.5	C	No
			PM	29.2	D	29.2	D	
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	32.2	D	32.2	D	No
			PM	30.1	D	30.1	D	
		Merge (on-ramp)	AM	**35.1**	**E**	**35.4**	**E**	**Yes**
			PM	26.9	C	27.1	C	
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**41.5**	**F**	**41.5**	**F**	No
			PM	**37.0**	**E**	**37.1**	**E**	
		Merge (on-ramp)	AM	**1,971**	**F**	**1,982**	**F**	**Yes**
			PM	**1,837**	**E**	**1,844**	**E**	
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**35.6**	**E**	**35.6**	**E**	No
			PM	**44.0**	**F**	**44.0**	**F**	
		Merge (on-ramp)	AM	31.2	D	31.3	D	No
			PM	**47.3**	**F**	**47.4**	**F**	

Note: **Bold** highlighting denotes roadway segments with unacceptable operations.

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Table 11-36 summarizes the results of the freeway mainline LOS analyses under Cumulative Plus Both Conditions, and Table 11-37 summarizes the results of the freeway ramp merge/diverge LOS analysis. Based on the results in Table 11-36, the following freeway mainline segments are expected to operate at LOS E or F under Cumulative Plus Both Conditions:

- SR 120 EB between Yosemite Avenue and Main Street (PM peak hour),
- SR 120 WB between Main Street and Yosemite Avenue (AM peak hour),
- SR 99 NB between Jack Tone Road and SR 120 (AM peak hour),
- SR 99 NB between Jack Tone Road and Yosemite Avenue (PM peak hour),
- SR 99 SB between Yosemite Avenue and SR 120 (AM peak hour), and
- SR 99 SB between Yosemite Avenue and Jack Tone Road (PM peak hour).

Under the Cumulative Plus Evans and Pillsbury Estates Conditions, the following freeway merge/diverge sections are expected to operate at LOS E or F:

- SR 120 EB Main Street off-ramp (PM peak hour),
- SR 120 WB Main Street on-ramp (AM peak hour),
- SR 99 NB Austin Road On- and off-ramps (AM and PM peak hour),
- SR 99 SB Austin Road off-ramp (AM and PM peak hour), and
- SR 99 SB Austin Road on-ramp (PM peak hour).

Table 11-36. Mainline Levels of Service—Cumulative Plus Both Projects Conditions

			Cumulative No-Project		Cumulative Plus Both Projects		
Travel Direction	Segment	Peak Hour[a]	Density/ Service Volume[b]	Level of Service	Density/ Service Volume[b]	Level of Service	Significant Impact
Eastbound SR 120	Yosemite Ave. to Airport Way	AM	18.9	C	19.2	C	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Airport Way to Union Rd.	AM	20.6	C	20.9	C	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Union Rd. to Main St.	AM	20.3	C	20.6	C	**Yes**
		PM	**40.6**	**E**	**44.5**	**E**	
	Main St. to SR 99	AM	18.4	C	18.6	C	No
		PM	27.9	D	28.5	D	
Westbound SR 120	SR 99 to Main St.	AM	27.4	D	27.5	D	No
		PM	23.1	C	23.7	C	
	Main St. to Union Rd.	AM	34.9	D	**36.4**	**E**	**Yes**
		PM	23.6	C	24.5	C	
	Union Rd. to Airport Way	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	24.1	C	25	C	
	Airport Way to Yosemite Ave.	AM	**>45**	**F**	**>45**	**F**	**Yes**
		PM	23.6	C	24.5	C	
Northbound	Jack Tone Rd. to Austin Rd.	AM	**>45**	**F**	**>45**	**F**	**Yes**

Travel Direction	Segment	Peak Hour[a]	Cumulative No-Project Density/ Service Volume[b]	Cumulative No-Project Level of Service	Cumulative Plus Both Projects Density/ Service Volume[b]	Cumulative Plus Both Projects Level of Service	Significant Impact
		PM	**38**	**E**	**38.7**	**E**	
	Austin Rd. to SR 120 (weaving section)	AM	**1,971**	**F**	**1,987**	**F**	**Yes**
		PM	**1,837**	**E**	**1,848**	**E**	
	SR 120 to Yosemite Ave. (weaving section)	AM	1,121	C	1,139	C	**Yes**
		PM	**1,631**	**E**	**1,644**	**E**	
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	AM	**1,696**	**E**	**1,702**	**E**	**Yes**
		PM	**2,205**	**F**	**2,222**	**F**	
	SR 120 to Austin Rd.	AM	33.7	D	33.8	D	**Yes**
		PM	**>45**	**F**	**>45**	**F**	
	Austin Rd. to Jack Tone Rd.	AM	32.5	D	32.9	D	**Yes**
		PM	**>45**	**F**	**>45**	**F**	

Note: **Bold** highlighting denotes freeway mainline segments with unacceptable operations (LOS E or F) per Caltrans' Guide for the Preparation of Traffic Impact Studies (California Department of Transportation 2004).

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane. Service volume is only applicable for weaving sections (as defined by the Liesch Method) and the results are in passenger cars per hour.

Source: Fehr & Peers 2008.

Table 11-37. Ramp Junction Levels of Service—Cumulative Plus Both Projects Conditions

				Cumulative No-Project		Cumulative Plus Both Projects		
Travel Direction	Ramp	Merge/ Diverge	Peak Hour[a]	Density[b]	Level of Service	Density[b]	Level of Service	Significant Impact
Eastbound SR 120	Main St.	Diverge (off-ramp)	AM	27.1	C	27.5	C	**Yes**
			PM	**41.0**	**F**	**41.9**	**F**	
		Merge (on-ramp)	AM	20.5	C	20.8	C	No
			PM	29.2	D	29.4	D	
Westbound SR 120	Main St.	Diverge (off-ramp)	AM	32.2	D	32.3	D	No
			PM	30.1	D	30.4	D	
		Merge (on-ramp)	AM	**35.1**	**E**	**36.1**	**E**	**Yes**
			PM	26.9	C	27.6	C	
Northbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**41.5**	**F**	**41.6**	**F**	**Yes**
			PM	**37.0**	**E**	**37.3**	**E**	
		Merge (on-ramp)	AM	**1,971**	**F**	**1,987**	**F**	**Yes**
			PM	**1,837**	**E**	**1,848**	**E**	
Southbound SR 99	Austin Rd.	Diverge (off-ramp)	AM	**35.6**	**E**	**35.7**	**E**	No
			PM	**44.0**	**F**	**44.1**	**F**	
		Merge (on-ramp)	AM	31.2	D	31.5	D	**Yes**
			PM	**47.3**	**F**	**47.6**	**F**	

Note: **Bold** highlighting denotes roadway segments with unacceptable operations.

[a] AM = morning peak hour, PM = evening peak hour

[b] Density is based on HCS+ analysis and results are in passenger cars per mile per lane for the on-ramp merge section or off-ramp diverge section.

Source: Fehr & Peers 2008.

Impacts and Mitigation Measures

This section describes significant impacts on the transportation system as a result of the proposed project. Where available, mitigation measures are proposed to reduce the significance of each identified impact. Because of financial, political, and environmental constraints, not all impacts can be mitigated to a less-than-significant level. To simplify the description of project-related impacts, the following table is used to identify impacts for each of the development scenarios:

	Significant Impacts		
Facility/Location	Evans Estates	Pillsbury Estates	Both Projects
A St./B St.	X	N/A	X

Source: Fehr & Peers 2008.

Existing Plus Project Impacts and Mitigation

This section presents the project-related impacts under existing conditions. Figures 11-14A and 11-14B summarize the feasible mitigation measures identified below.

Impact TRA-1: Degradation of Intersection Operations from Increased Traffic at Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, and Main Street/Yosemite Avenue (Less than Significant with Mitigation)

	Significant Impacts		
Intersection	Evans Estates	Pillsbury Estates	Both Projects
4. Main St./Woodward Ave.	X		X
5. Union Rd./SR 120 WB ramps	X	X	X
6. Union Rd./SR 120 EB ramps	X	X	X
10. Airport Wy./SR 120 WB ramps	X	X	X
11. Airport Wy./SR 120 EB ramps	X	X	X
21. Main St./Yosemite Ave.	X	N/A	X

Source: Fehr & Peers 2008.

The impacts at the intersections above are considered significant. Impacts are less than significant at all other intersections.

The following mitigation measures would reduce the significance of the impacts identified above.

Mitigation Measure TRA-1a: Main Street/Woodward Avenue—Install a Traffic Signal

As shown in Tables 11-38 and 11-40, the installation of a traffic signal improves traffic operations to LOS C conditions during both the AM and PM peak hours. Therefore, the impact at this intersection is considered less than significant with mitigation.

Mitigation Measure TRA-1b: Union Road/SR 120 WB Ramps—Install a Traffic Signal and Add WB Right-Turn Lane

As shown in Tables 11-38 through 11-40, the installation of a traffic signal and WB right-turn lane improves traffic operations to LOS B conditions during both the AM and PM peak hours. Therefore, the impact at this intersection is considered less than significant with mitigation.

Note that this mitigation measure has also been identified as a required improvement for Phase 1 of the Promenade Shops at Orchard Valley shopping center. Based on information from the City, this traffic signal should be operational by spring of 2009.

Mitigation Measure TRA-1c: Union Road/SR 120 EB Ramps—Install a Traffic Signal and EB Right-Turn Lane

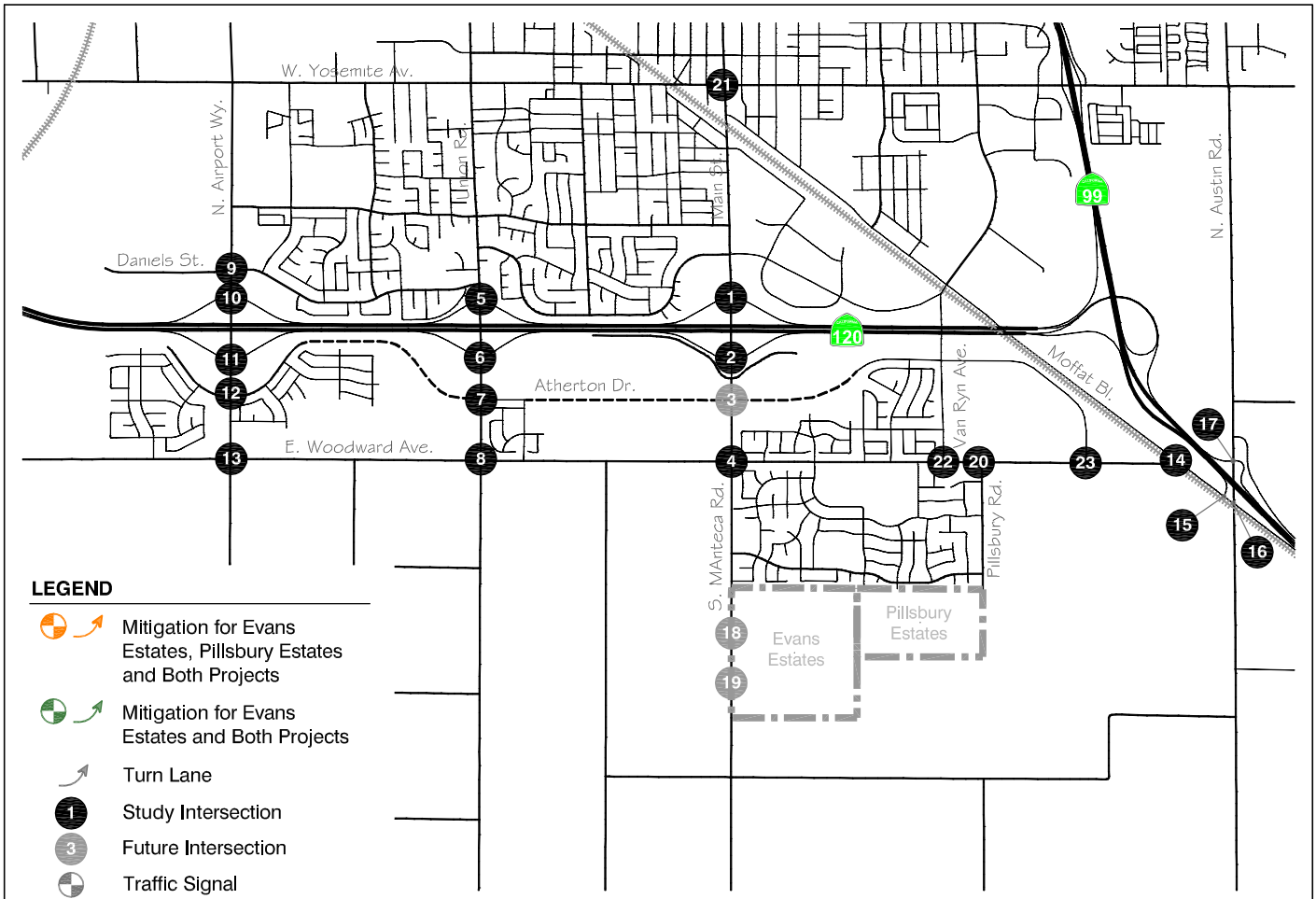
As shown in Tables 11-38 through 11-40, the installation of a traffic signal and EB right-turn lane improves traffic operations to LOS B conditions during the AM peak hour and LOS C conditions during the PM peak hour. Therefore, the impact at this intersection is considered less than significant with mitigation.

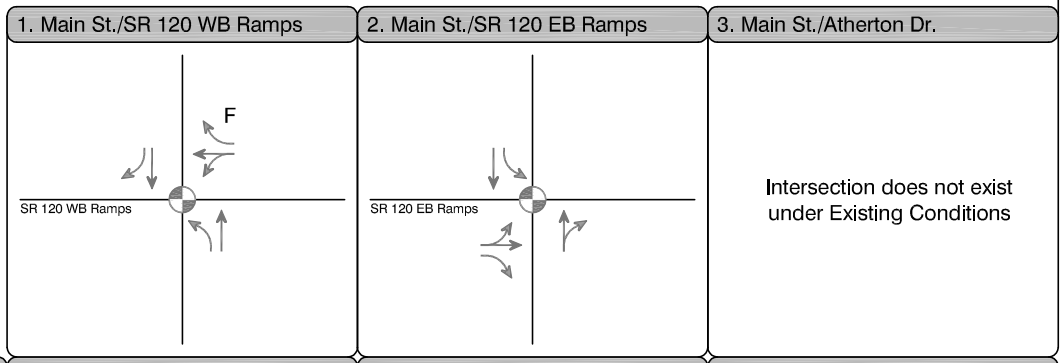
Note that this mitigation measure has also been identified as a required improvement for Phase 1 of the Promenade Shops at Orchard Valley shopping center. Based on information from the City, this traffic signal should be operational by spring of 2009.

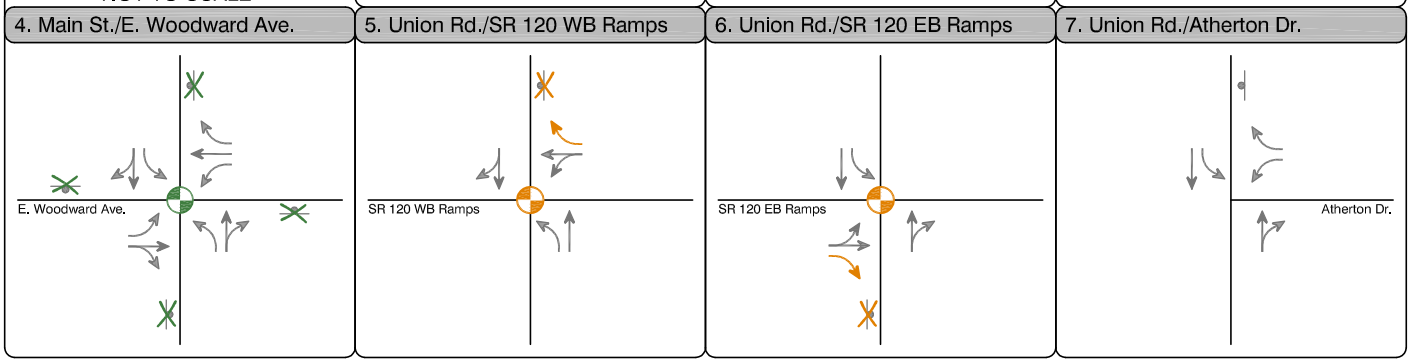
Mitigation Measure TRA-1d: Airport Way/SR 120 WB Ramps—Install a Traffic Signal and WB Right-Turn Lane

As shown in Tables 11-38 through 11-40, the installation of a traffic signal and WB right-turn lane improves traffic operations to LOS B conditions during both the AM and PM peak hours. Therefore, the impact at this intersection is considered less than significant with mitigation.

Note that at the time the Notice of Preparation was released, plans existed to install traffic signals at this location, consistent with mitigation measures identified for several other projects in the area. Based on





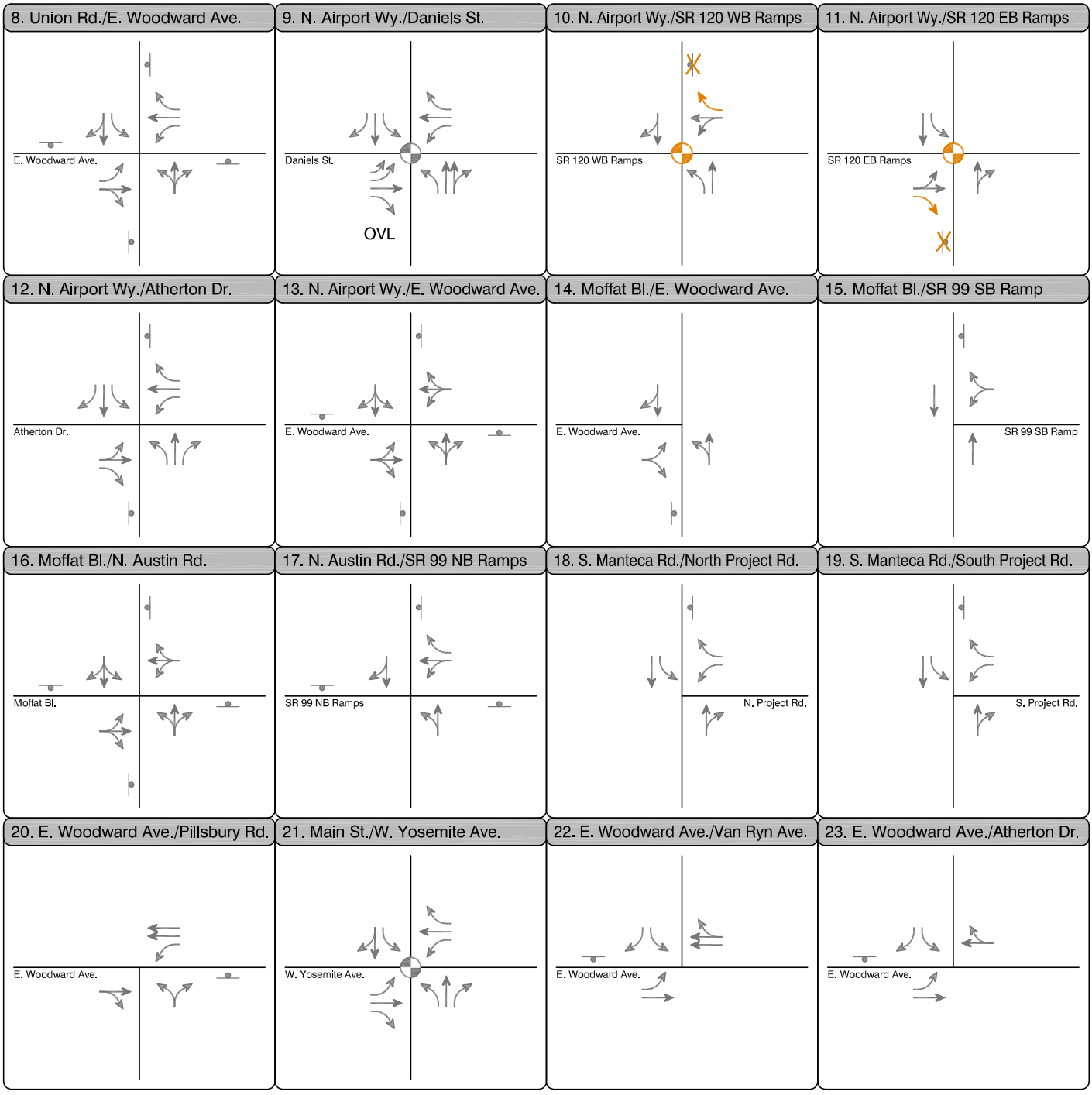


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INTERSECTION MITIGATION MEASURES - EXISTING PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-14A



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INTERSECTION MITIGATION MEASURES - EXISTING PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-14B

information from the City, these signals were projected to be in operation by fall of 2008.

Mitigation Measure TRA-1e: Airport Way/SR 120 EB Ramps—Install a Traffic Signal and EB Right-Turn Lane

As shown in Tables 11-38 through 11-40, the installation of a traffic signal and EB right-turn lane improves traffic operations to LOS B conditions during the AM peak hour and LOS C conditions during the PM peak hour. Therefore, the impact at this intersection is considered less than significant with mitigation.

Note that at the time the notice of preparation was released, plans existed to install traffic signals at this location, consistent with mitigation measures identified for several other projects in the area. Based on information from the City, these signals were projected to be in operation by fall of 2008.

Mitigation Measure TRA-1f: Main Street/Yosemite Avenue—Amend City General Plan to Exempt the Intersection from the City LOS Threshold or Pay City to Retime Traffic Signal and Monitor Intersection Operations

Adding a second SB through lane would reduce the project impact to a less-than-significant level by reducing the overall average intersection delay. However, the additional SB through lane would require the removal of on-street parking and landscaping improvements on Main Street north of Yosemite Avenue. Considering the limited parking supply within downtown Manteca, this improvement is deemed to be infeasible.

Implementation of either of the following two mitigation measures would reduce the significance of the project-related impact:

Because of the historic and pedestrian-friendly nature of Downtown Manteca, the City could exempt this intersection from the City LOS standard by amending the City General Plan. This amendment would acknowledge that the degraded peak-hour intersection operations are acceptable in order to protect the historic buildings, maintain on-street parking, and keep the area pedestrian-scaled by minimizing street crossing distances.

As shown in Tables 11-38 and 11-40, retiming the traffic signals at this intersection reduces the overall delay to or less than the Existing No-Project Condition. While the intersection still operates at an unacceptable LOS E, the incremental project impact is mitigated.

With either of the above mitigation measures adopted, this impact at this intersection is considered less than significant with mitigation.

Table 11-38. Intersection Levels of Service—Existing Plus Evans Estates Conditions with Mitigation

Intersection	Peak Hour[a]	Existing Plus Evans Estates			Existing Plus Evans Estates w/ Mitigation		
		Control	Delay[b]	LOS[c]	Control	Delay[b]	LOS[c]
Main St./Woodward Ave.	AM	All-Way Stop	**35**	**E**	Signal	21	C
	PM		**59**	**F**		28	C
Union Rd./SR 120 WB ramps	AM	All-Way Stop	29	D	Signal[d]	13	B
	PM		**56**	**F**		14	B
Union Rd./SR 120 EB ramps	AM	All-Way Stop	**54**	**F**	Signal[d]	16	B
	PM		**>100**	**F**		25	C
Airport Wy./SR 120 WB ramps	AM	All-Way Stop	32	D	Signal[d]	11	B
	PM		**>100**	**F**		12	B
Airport Wy./SR 120 EB ramps	AM	All-Way Stop	25	D	Signal[d]	18	B
	PM		**>100**	**F**		27	C
Main St./Yosemite Ave.	AM	Signal	32	C	Signal	32	C
	PM		**62**	**E**		56	E

Note: **Bold** highlighting denotes intersections with unacceptable operations. If the intersection is unsignalized, it must also meet peak-hour volume signal warrants.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

[d] LOS calculations were conducted using the SimTraffic software package due to the close proximity of adjacent signalized intersections.

N/A—Intersection is assumed to be signalized.

Source: Fehr & Peers 2008.

Table 11-39. Intersection Levels of Service—Existing Plus Pillsbury Estates with Mitigation

Intersection	Peak Hour[a]	Existing Plus Pillsbury Estates			Existing Plus Pillsbury Estates w/ Mitigation		
		Control	Delay[b]	LOS[c]	Control	Delay[b]	LOS[c]
Union Rd./SR 120 WB ramps	AM	All-Way Stop	29	D	Signal[d]	11	B
	PM		**52**	**F**		11	B
Union Rd./SR 120 EB ramps	AM	All-Way Stop	**48**	**F**	Signal[d]	16	B
	PM		**>100**	**F**		24	C
Airport Wy./SR 120 WB ramps	AM	All-Way Stop	29	D	Signal[d]	11	B
	PM		**>100**	**F**		10	B
Airport Wy./SR 120 EB ramps	AM	All-Way Stop	24	D	Signal[d]	18	B
	PM		**>100**	**F**		24	C

Note: **Bold** highlighting denotes intersections with unacceptable operations. If the intersection is unsignalized, it must also meet peak-hour volume signal warrants.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the SimTraffic software package.

[d] LOS calculations were conducted using the SimTraffic software package due to the close proximity of adjacent signalized intersections.

Source: Fehr & Peers 2008.

Table 11-40. Intersection Levels of Service—Existing Plus Both Projects with Mitigation

Intersection	Peak Hour[a]	Existing Plus Evans & Pillsbury Estates			Existing Plus Evans & Pillsbury w/ Mitigation		
		Control	Delay[b]	LOS[c]	Control	Delay[b]	LOS[c]
Main St./Woodward Ave.	AM	All-Way Stop	**45**	**E**	Signal	22	C
	PM		**72**	**F**		33	C
Union Rd./SR 120 WB ramps	AM	All-Way Stop	32	D	Signal[d]	14	B
	PM		**60**	**F**		16	B
Union Rd./SR 120 EB ramps	AM	All-Way Stop	**61**	**F**	Signal[d]	17	B
	PM		**>100**	**F**		26	C
Airport Wy./SR 120 WB ramps	AM	All-Way Stop	**35**	**E**	Signal[d]	11	B
	PM		**>100**	**F**		13	B
Airport Wy./SR 120 EB ramps	AM	All-Way Stop	26	D	Signal[d]	19	B
	PM		**>100**	**F**		26	C
Main St./Yosemite Ave.	AM	Signal	33	C	Signal	33	C
	PM		**65**	**E**		58	E

Note: **Bold** highlighting denotes intersections with unacceptable operations. If the intersection is unsignalized, it must also meet peak-hour volume signal warrants.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

[d] LOS calculations were conducted using the SimTraffic software package due to the close proximity of adjacent signalized intersections.

Source: Fehr & Peers 2008.

Impact TRA-2: Increased Demand for Bicycle Travel (Less than Significant with Mitigation)

Facility	Significant Impacts		
	Evans Estates	Pillsbury Estates	Both Projects
Bicycle Facilities	X	X	X

Source: Fehr & Peers 2008.

Although the new homes proposed to be constructed by all three of the development scenarios would increase demand for bicycle travel, no bicycle facilities are included under the proposed project. This impact is considered **significant**.

Mitigation Measure TRA-2: Construct Class II Bicycle Lanes on Selected Streets

The *City of Manteca Bicycle Master Plan* does not extend into the project site, but the plan calls for Class II bicycle lanes on Manteca Road/Main Street and Buena Vista Drive that terminate just north of the project site (Fehrs & Peers 2003). In order to connect the project site to the existing and planned bicycle facilities to the north, the Evans Estates proponent will construct Class II bicycle lanes along the project site's Manteca Road frontage. The Pillsbury Estates proponent will construct Class II bicycle lanes along Buena Vista Drive through the project site. In addition, the Pillsbury Estates proponent will coordinate with the City to ensure that Class II bike lanes are striped on Buena Vista Drive between Tannehill Drive and the northern border of the project site. Implementation of this mitigation measure will reduce this impact to a less-than-significant level.

Impact TRA-3: Increased Demand for Pedestrian Travel (Less than Significant)

	Significant Impact		
Facility	Evans Estates	Pillsbury Estates	Both Projects
Pedestrian Facilities	N/A	N/A	N/A

Source: Fehr & Peers 2008.

The new homes proposed to be constructed under all three of the development scenarios would increase pedestrian travel. A review of the project site plans indicates that sidewalks would be provided throughout each of the new developments per City standards. In addition, sidewalks would be provided on the periphery of the project site and would connect to existing adjacent neighborhoods. Therefore, this impact is considered less than significant.

Impact TRA-4: Impacts on the Transit System (Significant and Unavoidable)

	Significant Impacts		
Facility	Evans Estates	Pillsbury Estates	Both Projects
Transit Facilities	X	X	X

Source: Fehr & Peers 2008.

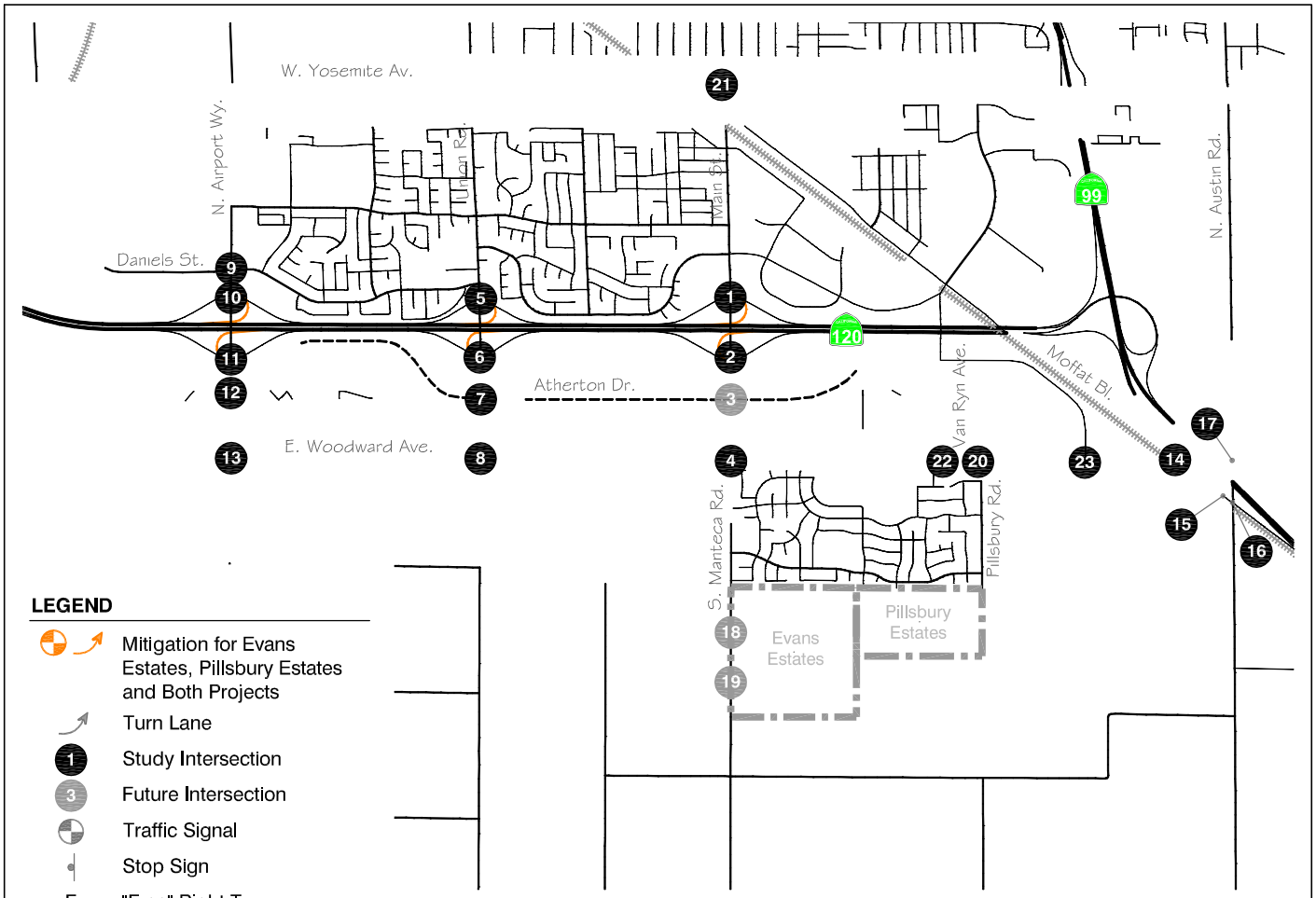
The development of new homes will create a demand for new transit trips; however, since there are no existing or planned transit services that serve the area, this impact is considered **significant**.

Mitigation Measure TRA-4: Coordinate with City and Manteca Transit to Facilitate Future Transit Service in the Area

The project proponents will coordinate with the City and Manteca Transit regarding the construction of transit facilities to serve the project site. Example transit facilities would include bus turnouts on Manteca Road/Main Street, McKinley Avenue, or Pillsbury Road; benches; or shelters. While these improvements will facilitate future transit service, they will not guarantee that transit demands generated by the proposed project are satisfied. Therefore, this impact remains significant and unavoidable.

Cumulative Plus Project Impacts and Mitigation

As described previously, few future roadway improvements were assumed to be constructed under Cumulative No-Project Conditions because the updated PFIP fee has not yet been adopted by the Manteca City Council. This assumption, combined with anticipated future growth, leads to a large number of roadway facilities that do not meet the City's LOS standard and a large number of project impacts. This section describes those impacts and generally recommends improvements from the updated PFIP project list as mitigation measures. The cumulative conditions mitigation measures are summarized on Figures 11-15A, 11-15B, and 11-16. Since roadway segment mitigation measures often have a secondary benefit of improving intersection operations, roadway segment impacts and mitigation measures will be discussed first.



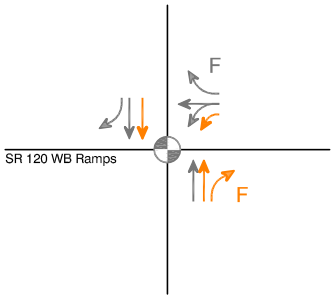
LEGEND

- Mitigation for Evans Estates, Pillsbury Estates and Both Projects
- Turn Lane
- 1 Study Intersection
- 3 Future Intersection
- Traffic Signal
- Stop Sign
- F "Free" Right Turn
- OVL Overlap Phasing
- Project Site
- Future Road

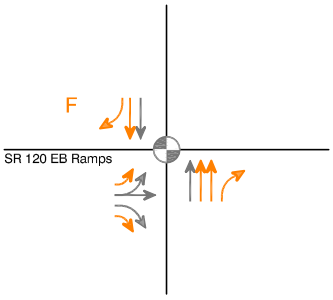
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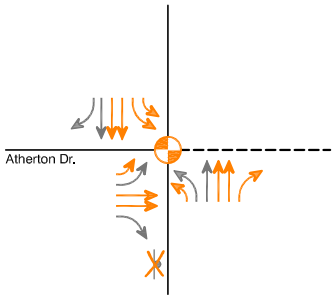
1. Main St./SR 120 WB Ramps



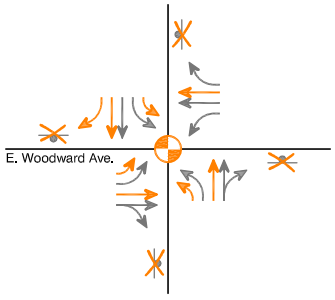
2. Main St./SR 120 EB Ramps



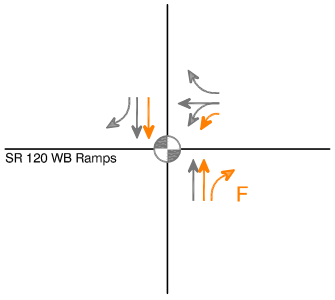
3. Main St./Atherton Dr.



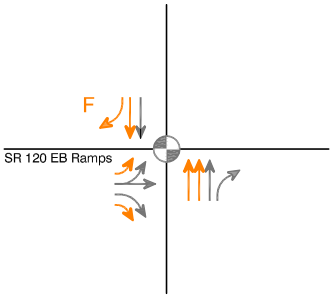
4. Main St./E. Woodward Ave.



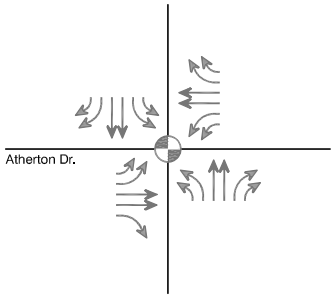
5. Union Rd./SR 120 WB Ramps



6. Union Rd./SR 120 EB Ramps



7. Union Rd./Atherton Dr.

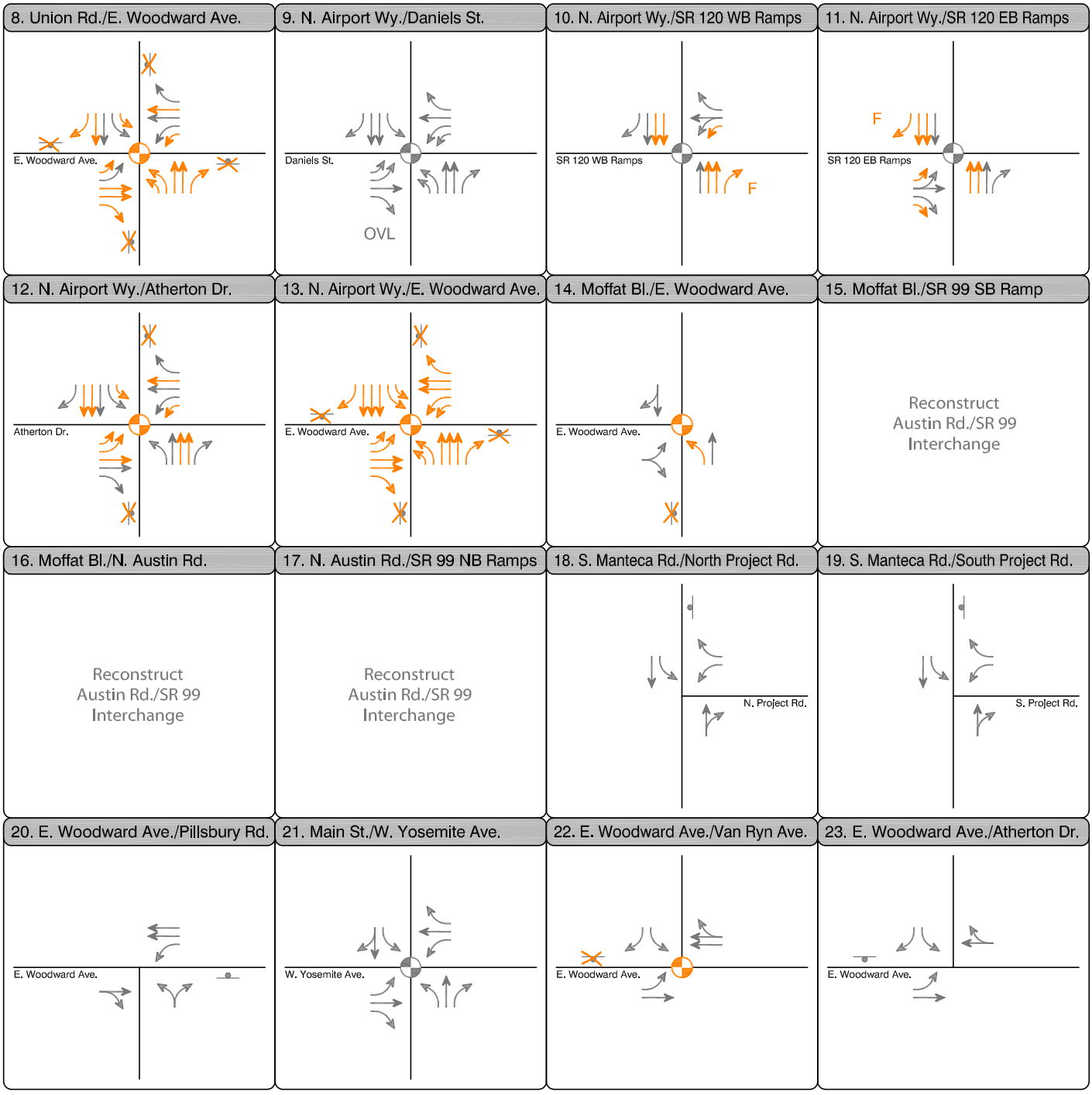


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INTERSECTION MITIGATION MEASURES - CULUMATIVE PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-15A

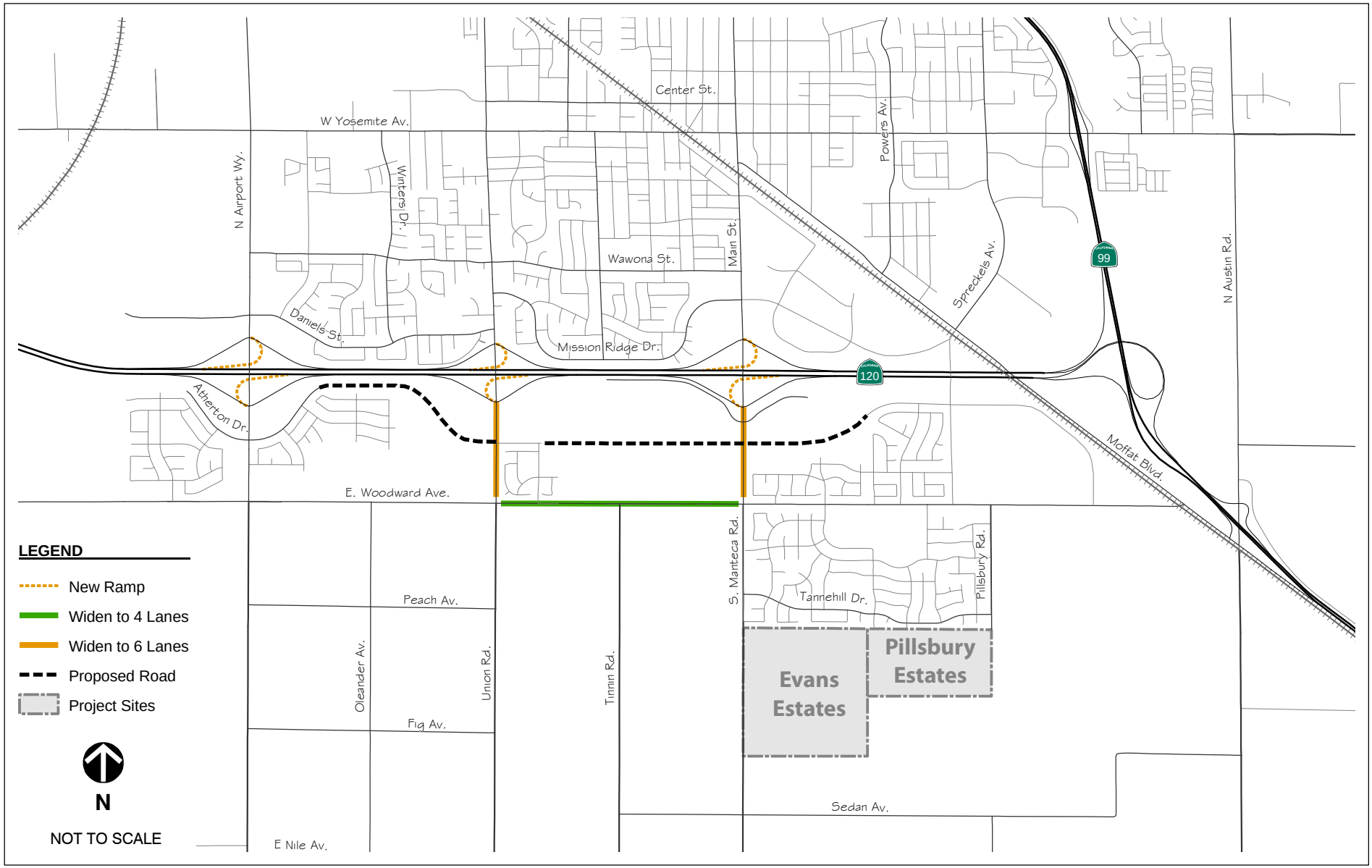


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INTERSECTION MITIGATION MEASURES - CUMULATIVE PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-15B



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ROADWAY SEGMENT MITIGATION MEASURES - CUMULATIVE PLUS BOTH PROJECTS CONDITIONS

FIGURE 11-16

Impact TRA-5a: Degradation of Roadway Segment Operations from Increased Traffic at Main Street, Between SR 120 WB Ramps and SR 120 EB Ramps, Between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; Union Road, between SR 120 WB Ramps and SR 120 EB Ramps, between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; and Woodward Avenue, between Union Road and Main Street (Less than Significant with Mitigation)

Impact TRA-5b: Degradation of Roadway Segment Operations from Increased Traffic at Moffat Boulevard, Between SR 99 SB Off-Ramp and Austin Road, and Austin Road, Between SR 99 NB Ramps and Moffat Boulevard (Significant and Unavoidable).

	Significant Impacts		
Roadway Segment	Evans Estates	Pillsbury Estates	Both Projects
Main St. between SR 120 WB ramps and SR 120 EB ramps	X	X	X
Main St. between SR 120 and Atherton Dr.	X	X	X
Main St. between Atherton Dr. and Woodward Ave.	X	X	X
Union Rd. between SR 120 WB ramps and SR 120 EB ramps	X	X	X
Union Rd. between SR 120 and Atherton Dr.	X	X	X
Union Rd. between Atherton Dr. and Woodward Ave.	X	X	X
Woodward Ave. between Union Rd. and Main St.	X	X	X
Moffat Blvd. between SR 99 SB off-ramp and Austin Rd.	X	X	X
Austin Rd. between SR 99 NB ramps and Moffat Blvd.	N/A	X	X

Source: Fehr & Peers 2008.

The impacts at the roadway segments above are considered significant. Impacts are less than significant at all other roadway segments.

The following mitigation measures reduce the significance of the impacts identified above.

Mitigation Measure TRA-5a: Main Street between the SR 120 EB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Main Street/SR 120

The SJCOG RTP lists the Main Street/SR 120 interchange reconstruction as a Tier I project; however, a PSR has not been prepared for these improvements.

As part of the PSR process, it is expected that an interchange design will be chosen to provide acceptable LOS D or better operations under 2025 conditions. Given the similarities between Main Street and Union Road, the future interchange design is expected to be very similar to the Union Road/SR 120 interchange[1], which has the following design:

- An overpass with two SB through lanes and three NB through lanes;
- At the WB ramp terminal intersection:
  - NB approach: two through lanes and a single right-turn lane (trap lane) to the north-to-west loop on-ramp;
  - SB approach: two through lanes and a single right-turn lane;
  - WB approach: dual left-turn lanes and a single right-turn lane;
- At the EB ramp terminal intersection:
  - NB approach: three through lanes and a single right-turn lane;
  - SB approach: two through lanes and a single right-turn lane to the south-to-east loop on-ramp;
  - EB approach: dual left-turn lanes and dual right-turn lanes.

Table 11-41 shows that with these improvements, this segment of Main Street will operate at an acceptable LOS D.

As described previously, full funding of this interchange improvement is dependent on the adoption of the updated PFIP by the City Council. Since the PFIP update has not yet been adopted, project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the interchange improvements, the project proponent will also pay its fair-share of the unfunded portion of the interchange improvements at the time of building permit issuance.

1 The Union Road/SR 120 interchange is also listed as a Tier I project in the SJCOG RTP and a PSR is currently being prepared.

By completing the mitigations described above, the proposed project will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-5b: Main Street between SR 120 EB Ramps and Woodward Avenue—Pay Fair-Share Contribution to Widen Main Street to Six Lanes

By widening this roadway segment to six lanes, the project impact would be reduced to a less-than-significant level and roadway operations would improve to LOS C conditions (see Table 11-41). In addition, this mitigation measure would be consistent with the updated PFIP project list.

To implement this improvement, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair share contribution by paying the updated PFIP, assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-5c: Union Road between SR 120 WB Ramps and SR 120 EB Ramps—Pay Fair-Share Contribution toward the Construction of a New Interchange at Union Road/SR 120

The City and Caltrans are currently preparing a PSR for future interchange improvements at Union Road/SR 120 interchange. 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 2025 conditions. The future design of the interchange is not yet finalized, but will probably be a partial cloverleaf design with a north-to-west loop on-ramp and a south-to-east loop on-ramp or dual SB left-turn lanes. The overpass would include two SB through lanes and three NB through lanes.

This improvement is considered a Tier 1 funded improvement in the SJCOG RTP; however, it is dependent on the adoption of the PFIP by the City Council. Since the PFIP has not yet been adopted, the project impacts could be mitigated as follows:

- The project proponent will pay the current PFIP fee in place at time of building permit approval.
- If the PFIP fee in place at time of building permit approval is known by the City to not fully fund the cost of the interchange improvements, the project proponent will also pay his fair-share of the unfunded portion of the interchange improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-5d: Union Road between SR 120 EB Ramps and Woodward Avenue—Pay Fair-Share Contribution to Widen Union Road to Six Lanes

By widening this roadway segment to six lanes, the project impact would be reduced to a less-than-significant level and roadway operations would improve to LOS C conditions (see Table 11-41). In addition, this mitigation measure would be consistent with the updated PFIP project list.

To implement this improvement, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP, assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impact could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-5e: Woodward Avenue between Union Road and Main Street—Pay Fair-Share Contribution to Widen Woodward Avenue to Four Lanes

By widening this roadway segment to four lanes, the project impact would be reduced to a less-than-significant level and roadway operations would improve to LOS C conditions (Table 11-41). In addition, this mitigation measure would be consistent with the updated PFIP project list.

To implement this improvement, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP, assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-5f: Moffat Boulevard between Woodward Avenue and Austin Road—Pay Fair-Share Contribution to Reconstruct the SR 99/Austin Road Interchange

By widening this roadway segment to four lanes, the project impact would be reduced to a less-than-significant level when measured against the City's roadway segment LOS thresholds. However, because of the closely spaced SR 99 SB off-ramp and Austin Road intersections, roadway segment operations at this location will be dominated by intersection operations. The antiquated design of the current SR 99/Austin Road interchange is inadequate to serve traffic demand under cumulative conditions. Minor ramp widening, intersection widening, and signalization can improve conditions over the existing geometries but they will not reduce the significance of the project impacts.

To improve the interchange operations, the City and Caltrans are currently preparing a PSR to reconstruct the interchange approximately

1.2 miles south of the current location. This relocated interchange would remove the majority of the cumulative conditions and project traffic from this segment of Moffat Boulevard, since it would no longer provide access to SR 99. Therefore, this improvement would reduce the project impact to a less-than-significant level.

To implement the relocated SR 99/Austin Road interchange, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

The most recent cost estimate for the SR 99/Austin Road interchange was $144 million. Due to the high cost of this improvement, the City is debating whether to include the full cost of this interchange in the updated PFIP fee. Given the uncertainty of funding at this location, a fair-share payment that is beyond the adopted PFIP fee is likely financially infeasible. Therefore, this impact is significant and unavoidable.

Austin Road between SR 99 NB ramps and Moffat Boulevard

As described above, this impact could be reduced to a less-than-significant level by implementing Mitigation Measure TRA-5f, which includes constructing the new SR 99/Austin Road interchange. However, since this mitigation measure is considered infeasible due to lack of funding, the impact at Austin Road between SR 99 NB ramps and Moffat Boulevard would be **significant and unavoidable**.

Impact TRA-6a: Degradation of Intersection Operations from Increased Project Traffic at Main Street/SR 120 WB Ramps, Main Street/SR 120 EB Ramps, Main Street/Atherton Drive, Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Union Road/Atherton Drive, Union Road/Woodward Avenue, Airport Way/Daniels Street, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, Airport Way/Atherton Drive, Airport Way/Woodward Avenue, and Woodward Avenue/Moffat Boulevard (Less than Significant with Mitigation)

Impact TRA-6b: Degradation of Intersection Operations from Increased Traffic at Woodward Avenue/Moffat Boulevard, Moffat Boulevard/ SR 99 SB Off-Ramp, Moffat Boulevard/Austin Road/SR 99 SB On-Ramps, Austin Road/SR 99 NB Ramps, and Main Street/Yosemite Avenue (Significant and Unavoidable).

The impacts at the intersections above are considered significant. Impacts are less than significant at all other intersections.

The following mitigation measures reduce the significance of the impacts identified above. Since the same intersections are impacted under the Plus Evans Estates, Plus Pillsbury Estates, and Plus Both Projects scenarios, the Cumulative Plus Project with mitigation LOS results are reported for the Plus Both Projects scenario only. Since this scenario has the most traffic, it represents the worst case conditions; thus, mitigation measures that are effective under this scenario will also be effective under the Evans Estates only or Pillsbury Estates only scenario.

Intersection	Significant Impacts		
	Evans Estates	Pillsbury Estates	Both Projects
Main St./SR 120 WB Ramps	X	X	X
Main St./SR 120 EB ramps	X	X	X
Main St./Atherton Dr.	X	X	X
Main St./Woodward Ave.	X	X	X
Union Rd./SR 120 WB ramps	X	X	X
Union Rd./SR 120 EB ramps	X	X	X
Union Rd./Atherton Dr.	X	X	X
Union Rd./Woodward Ave.	X	X	X
Airport Wy./Daniels St.	X	X	X
Airport Wy./SR 120 WB ramps	X	X	X
Airport Wy./SR 120 EB ramps	X	X	X
Airport Wy./Atherton Dr.	X	X	X
Airport Wy./Woodward Ave.	X	X	X
Woodward Ave./Moffat Blvd.	X	X	X
Moffat Blvd./SR 99 SB off-ramp	X	X	X
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	X	X	X
Austin Rd./SR 99 NB ramps	X	X	X
Main St./Yosemite Ave.	X	X	X
Woodward Ave./Van Ryn Ave.	X	X	X

Source: Fehr & Peers 2008.

Main Street/SR 120 WB Ramps

Implementation of Mitigation Measure TRA-5a, under which the project proponent will pay its fair-share to construct a new interchange at SR 120 and Main Street, will provide LOS D or better AM and PM peak-hour operations at the ramp terminal intersections, as shown in Table 11-41. Therefore, the impact on this intersection would be reduced to a less-than-significant level.

Main Street/SR 120 EB Ramps

Implementation of Mitigation Measure TRA-5a, under which the project proponent would pay its fair-share to construct a new interchange at SR 120 and Main Street, would provide LOS D or better AM and PM peak-hour operations at the ramp terminal intersections, as shown in Table 11-41. Therefore, the impact to this intersection would be reduced to a less-than-significant level.

Mitigation Measure TRA-6a: Main Street/Atherton Drive—Pay Fair-Share Contribution to Improve the Intersection

Implementation of Mitigation Measure TRA-5b will increase capacity at this intersection, which will reduce the significance of the project impact at this location. However, in conjunction with the Main Street widening, the following intersection improvements from the PFIP project list should be included in order to reduce the impact to a less-than-significant level:

- signalize intersection, and
- construct dual left-turn lanes and single right-turn lanes on all approaches.

With these mitigation measures in place the intersection would operate at an acceptable LOS during the AM and PM peak hours, as shown in Table 11-41.

To implement the widening and intersection improvements, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP, assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

With implementation of Mitigation Measures TRA-5b and TRA-6a, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location, and the impact would be reduced to a less-than-significant level.

Mitigation Measure TRA-6b: Main Street/Woodward Avenue—Pay Fair-Share Contribution to Improve the Intersection

Implementation of Mitigation Measure TRA-5b will increase capacity at this intersection, which will reduce the significance of the project impact at this location. However, in conjunction with the Main Street widening, the following intersection improvements from the PFIP project list should be included in order to reduce the impact to a less-than-significant level:

- signalize intersection;

- construct dual left-turn lanes on NB, SB, and EB approaches; and
- construct right-turn lanes on WB and SB approaches.

With these mitigation measures, the intersection would operate at an acceptable LOS during the AM and PM peak hours, as shown in Table 11-41.

To implement the widening and intersection improvements, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP, assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

With implementation of Mitigation Measures TRA-5b and TRA-6b, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location, and the impact will be reduced to a less-than-significant level.

Union Road/SR 120 WB Ramps

With implementation of Mitigation Measure TRA-5c, the project proponent would pay its fair-share to construct a new interchange at SR 120 and Union Road. As shown in Table 11-41, this mitigation measure would provide LOS D or better AM and PM peak-hour operations at the ramp terminal intersections, and reduce this impact to a less-than-significant level**.**

Union Road/SR 120 EB Ramps

With implementation of Mitigation Measure TRA-5c, the project proponent would pay its fair-share to construct a new interchange at SR 120 and Union Road. As shown in Table 11-41, this mitigation measure would provide LOS D or better AM and PM peak-hour operations at the ramp terminal intersections, and reduce this impact to a less-than-significant level**.**

Union Road/Atherton Drive

As described previously, the Promenade Shops at Orchard Valley has been conditioned to improve this intersection to include a traffic signal

and multiple turn lanes under Cumulative No-Project Conditions. This intersection would operate at LOS D or better conditions during the AM and PM peak hours but for congestion extending back from the Union Road/SR 120 interchange and the Union Road/Woodward Avenue intersection. Implementation of Mitigation Measures TRA-5c, TRA-5d, and TRA-6c will improve the intersection operations during the AM and PM peak hours, as shown in Table 11-41. However, because of the heavy turning movement volumes coming out of the commercial centers, the intersection will operate at LOS D during the PM peak hour. While this does not meet the City's LOS C standard, the delay is much lower when compared to Cumulative No-Project Conditions; and considering the proximity to SR 120, LOS D is considered acceptable at this location. With these mitigation measures implemented, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-6c: Union Road/Woodward Avenue—Pay Fair-Share Contribution to Improve the Intersection

The widening projects included in Mitigation Measures TRA-5d and TRA-5e will increase capacity at this intersection, which will reduce project impact at this location. However, in conjunction with the Union Road and Woodward Avenue widening, the following intersection improvements from the PFIP project list should be included in order to reduce the impact to a less-than-significant level:

- signalize intersection,
- construct second NB and EB through lane, and
- construct dual left-turn lanes and right-turn lanes on all approaches.

With these mitigation measures in place, the intersection would operate at an acceptable LOS during the AM and PM peak hours, as shown in Table 11-41.

To implement the widening and intersection improvements, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project can pay its fair-share contribution by paying the updated PFIP assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project could mitigate its impact as follows:

- Pay the PFIP fee in place at time of building permit issuance;
- If the PFIP fee in place at 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 proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

With implementation of TRA-5d, TRA-5e, and TRA-6c, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location, and the impact would be reduced to a less-than-significant level.

Mitigation Measure TRA-6d: Airport Way/Daniels Street—Pay Fair-Share Contribution for the Construction of a New Interchange at Airport Way/SR 120

The impact analysis indicated that poor operations at this intersection are related to queues spilling back from the Airport Way/SR 120 interchange. Therefore, by improving interchange operations, the project impacts at this intersection can be reduced to a less-than-significant level.

The City and Caltrans are currently preparing a 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 2025 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 similar), 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.

This new interchange is listed as a Tier 1 improvement in the SJCOG RTP; however, it is dependent on the adoption of the PFIP by the City Council. Since the PFIP has not yet been adopted, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-6e: Airport Way/Atherton Drive—Pay Fair-Share Contribution 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 NB and SB through lanes (identified as part of a separate Airport Way widening project);
- construct second through lane on EB and WB approach;
- construct dual left-turn lanes on the SB, EB, and WB approaches; and
- construct right-turn lanes on all approaches.

With these mitigation measures, the intersection would operate at an acceptable LOS during the AM and PM peak hours, as shown in Table 11-41.

To implement the widening and intersection improvements, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-6f: Airport Way/Woodward Avenue—Pay Fair-Share Contribution 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,
- widen the intersection approaches to include three NB and SB through lanes and two EB and WB through lanes (identified as part of separate widening projects), and
- construct dual left-turn lanes and right-turn lanes on all approaches.

With these mitigation measures, the intersection would operate at an acceptable LOS during the AM and PM peak hours, as shown in Table 11-41.

To implement the widening and intersection improvements, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.
- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Mitigation Measure TRA-6g: Woodward Avenue/Moffat Boulevard—Pay Fair-Share Contribution of Intersection Improvements

Intersection improvements at the Moffat Boulevard/Woodward Avenue intersection are not included in the PFIP because of uncertainty surrounding the Union Pacific Railroad (UPRR) crossing. With the implementation of the proposed Austin Road Business Park and Residential Community project, the opportunity exists to realign Woodward Avenue south of the UPRR tracks and avoid some rail crossing conflicts. However, since it is unknown when and if the Austin Road Business Park and Residential Community project would realign Woodward Avenue, the following Moffat Boulevard/Woodward Avenue intersection improvement is recommended:

- signalize the intersection and coordinate the signal with the UPRR crossing arms, and
- construct a separate NB left-turn lane.

With the installation of the signal, the LOS analysis indicates that the Moffat Boulevard and Woodward Avenue intersection will operate at LOS B during the AM and PM peak hours. Table 11-41 presents the intersection LOS results under Cumulative Plus Project with Mitigation Conditions.

To implement these improvements, the project proponent will pay a fair-share contribution. Since this project is not in the PFIP fee, a separate fair-share payment will be required. While the improvement will provide adequate operations under Cumulative Plus Project Conditions, it is unknown if UPRR or the California Public Utilities Commission will allow the interconnection of the traffic signal and railroad crossing arms. Therefore, this impact is considered significant and unavoidable.

Moffat Boulevard/SR 99 SB Off-Ramp

As described previously, minor ramp and intersection widening cannot reduce the significance of the project impacts at the Austin Road/Moffat Boulevard/SR 99 interchange. Based on the preliminary results of the Austin Road/SR 99 interchange PSR, no long-term improvements are feasible at the current Austin Road interchange because of the proximity to the SR99/SR120 interchange.

Reconstruction of the Austin Road/SR 99 interchange south of its current location (Mitigation Measure TRA-5f), would reduce the significance of the project impacts at this location by removing this intersection. However, as described previously, it is unknown if the new interchange will be constructed because of financial constraints. Therefore, this impact is considered significant and unavoidable.

Moffat Boulevard/Austin Road

As described previously, minor ramp and intersection widening cannot reduce the significance of the project impacts at the Austin Road/Moffat Boulevard/SR 99 interchange. Based on the preliminary results of the Austin Road/SR 99 interchange PSR, no long-term improvements are feasible at the current Austin Road interchange because of the proximity to the SR99/SR120 interchange.

Reconstruction of the Austin Road/SR 99 interchange south of its current location (Mitigation Measure TRA-5f), would reduce the significance of the project impacts at this location by removing the majority of cumulative conditions and project-related traffic. However, as described previously, it is unknown if the new interchange will be constructed because of financial constraints. Therefore, this impact is considered significant and unavoidable.

Austin Road/SR 99 NB Ramps

As described previously, minor ramp and intersection widening cannot reduce the significance of the project impacts at the Austin Road/SR 99 interchange. Based on the preliminary results of the Austin Road/SR 99 interchange PSR, no long-term improvements are feasible at the current Austin Road interchange because of the proximity to the SR99/SR120 interchange.

Reconstruction of the Austin Road/SR 99 interchange south of its current location (Mitigation Measure TRA-5f), would reduce the significance of the project impacts at this location by removing the majority of cumulative conditions and project-related traffic. However, as described previously, it is unknown if the new interchange will be constructed because of financial constraints. Therefore, this impact is considered significant and unavoidable.

Mitigation Measure TRA-6h: Main Street/Yosemite Avenue—Amend City General Plan to Exempt Intersection from LOS Standards

The PFIP project list does not contain any improvements for the Main Street/Yosemite Avenue intersection because of limited right-of-way and the desire to maintain the character of Downtown Manteca. Without improvements to this intersection, the addition of project traffic would exacerbate unacceptable LOS under Cumulative No-Project Conditions.

Exempting this intersection from the City's LOS standards would not improve operations at this location, but it would acknowledge that the City is willing to accept unacceptable vehicle operations during the AM and PM peak hours to preserve the pedestrian-oriented and historic character of Downtown Manteca. This impact is considered significant and unavoidable.

Mitigation Measure TRA-6i: Woodward Avenue/Van Ryn Avenue—Pay Fair-Share Contribution 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.

With these mitigation measures, the intersection would operate at an acceptable LOS during the AM and PM peak hours, as shown in Table 11-41.

To implement the widening and intersection improvements, the project proponent will pay a fair-share contribution. As described above, the City Council is considering an update to the PFIP that will cover the cost of the improvements. The project proponent can pay its fair-share contribution by paying the updated PFIP assuming that the full PFIP is adopted by the City Council. However, since the PFIP update has not yet been adopted, and is not guaranteed to fully cover the costs of the improvements, the project impacts could be mitigated as follows:

- The project proponent will pay the PFIP fee in place at time of building permit issuance.

- If the PFIP fee in place at time of building permit issuance is known by the City to not fully fund the cost of the roadway and intersection improvements, the project proponent will also pay their fair-share of the unfunded portion of the roadway and intersection improvements at the time of building permit issuance.

By completing the mitigations described above, the project proponent will be contributing its fair-share toward mitigating the project's cumulative impact at this location. Therefore, this impact is considered less than significant with mitigation.

Table 11-41. Intersection Levels of Service—Cumulative Plus Both Projects with Mitigation

Intersection	Peak Hour[a]	Cumulative No-Project		Cumulative Plus Both Projects without Mitigation		Cumulative Plus Both Projects with Mitigation	
		Delay[b]	LOS[c]	Delay[b]	LOS[c]	Delay[b]	LOS[c]
Main St./SR 120 WB ramps	AM	**69**	**E**	**94**	**F**	8	A
	PM	**>200**	**F**	**>200**	**F**	18	B
Main St./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	18	B
	PM	**>200**	**F**	**>200**	**F**	23	C
Main St./Atherton Dr.	AM	**111**	**F**	**163**	**F**	11	A
	PM	**>200**	**F**	**>200**	**F**	23	C
Main St./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	30	C
	PM	**>200**	**F**	**>200**	**F**	28	C
Union Rd./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	14	B
	PM	**>200**	**F**	**>200**	**F**	20	B
Union Rd./SR 120 EB ramps	AM	**143**	**F**	**145**	**F**	12	B
	PM	**>200**	**F**	**>200**	**F**	24	C
Union Rd./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	27	C
	PM	**>200**	**F**	**>200**	**F**	36	D
Union Rd./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	26	C
	PM	**>200**	**F**	**>200**	**F**	23	C
Airport Wy./Daniels St.	AM	**>200**	**F**	**>200**	**F**	27	C
	PM	**>200**	**F**	**>200**	**F**	39	D
Airport Wy./SR 120 WB ramps	AM	**>200**	**F**	**>200**	**F**	48	D
	PM	**>200**	**F**	**>200**	**F**	27	C
Airport Wy./SR 120 EB ramps	AM	**>200**	**F**	**>200**	**F**	10	B
	PM	**>200**	**F**	**>200**	**F**	45	D
Airport Wy./Atherton Dr.	AM	**>200**	**F**	**>200**	**F**	43	D

Intersection	Peak Hour[a]	Cumulative No-Project		Cumulative Plus Both Projects without Mitigation		Cumulative Plus Both Projects with Mitigation	
		Delay[b]	LOS[c]	Delay[b]	LOS[c]	Delay[b]	LOS[c]
	PM	**>200**	**F**	**>200**	**F**	52	D
Airport Wy./Woodward Ave.	AM	**>200**	**F**	**>200**	**F**	24	C
	PM	**>200**	**F**	**>200**	**F**	26	C
Woodward Ave./Moffat Blvd.	AM	26	D	19	C	12	B
	PM	**118**	**F**	**>200**	**F**	19	B
Moffat Blvd./SR 99 SB off-ramp	AM	**>200**	**F**	**>200**	**F**		
	PM	**>200**	**F**	**>200**	**F**		
Moffat Blvd./Austin Rd./SR 99 SB on-ramps	AM	**89**	**F**	**89**	**F**	Mitigation is not feasible.	
	PM	**141**	**F**	**160**	**F**		
Austin Rd./SR 99 NB ramps	AM	**>200**	**F**	**>200**	**F**		
	PM	34	D	**52**	**F**		
S. Manteca Rd./N. Project Rd.	AM	Does not exist in Cumulative No-Project Scenario.		12	B		
	PM			11	B		
S. Manteca Rd./S. Project Rd.	AM			10	B	No mitigation is required.	
	PM			10	B		
Woodward Ave./Pillsbury Rd.	AM	11	B	14	B		
	PM	12	B	16	C		
Main St./Yosemite Ave.	AM	30	C	31	C	Mitigation is not feasible.	
	PM	84	F	**97**	**F**		
Woodward Ave./Van Ryn Ave.	AM	14	B	16	C	11	B
	PM	**40**	**E**	**80**	**F**	12	B
Woodward Ave./Atherton Dr.	AM	14	B	15	B	No mitigation is required.	
	PM	15	B	16	C		

Note: **Bold** highlighting denotes intersections with unacceptable operations (LOS E or F). If the intersection is unsignalized, it must also meet peak-hour volume signal warrants.

[a] AM = morning peak hour, PM = evening peak hour

[b] Whole-intersection weighted average control delay is expressed in seconds per vehicle, using methodology described in the 2000 HCM. For side-street stop-controlled intersections, total control delay for the worst movement is presented in parentheses.

[c] LOS = level of service. For side-street stop-controlled intersections, LOS for the worst movement is shown in parentheses. LOS calculations were conducted using the Synchro software package.

Source: Fehr & Peers 2008.

Impact TRA-7: Degradation of Freeway Mainline Operations from Increased Traffic at SR 120 EB from Yosemite Avenue to Airport Way, Airport Way to Union Road, Union Road to Main Street, and Main Street to SR 99; SR 120 WB from SR 99 to Main Street, Main Street to Union Road, Union Road to Airport Way, Airport Way to Yosemite Avenue; SR 99 NB from Jack Tone Road to Austin Road, Austin Road to SR 120 (Weaving Section), and SR 120 to Yosemite Avenue (Weaving Section); and SR 99 SB from Yosemite Avenue to SR 120 (Weaving Section), SR 120 to Austin Road, and Austin Road to Jack Tone Road (Significant and Unavoidable)

		Significant Impacts		
Mainline Segment		Evans Estates	Pillsbury Estates	Both Projects
Eastbound SR 120	Yosemite Ave. to Airport Way	X	X	X
	Airport Way to Union Rd.	X	X	X
	Union Rd. to Main St.	X	X	X
	Main St. to SR 99	N/A	N/A	N/A
Westbound SR 120	SR 99 to Main St.	N/A	N/A	N/A
	Main St. to Union Rd.	X	X	X
	Union Rd. to Airport Way	X	X	X
	Airport Way to Yosemite Ave.	X	X	X
Northbound SR 99	Jack Tone Rd. to Austin Rd.	X	X	X
	Austin Rd. to SR 120 (weaving section)	X	X	X
	SR 120 to Yosemite Ave. (weaving section)	X		X
Southbound SR 99	Yosemite Ave. to SR 120 (weaving section)	X	X	X
	SR 120 to Austin Rd.	X	X	X
	Austin Rd. to Jack Tone Rd.	X	X	X

Source: Fehr & Peers 2008.

As shown in the table above, the addition of project traffic from the Evans Estates, Pillsbury Estates, or both projects would cause significant impacts at the majority of study freeway facilities. While the project-generated traffic is relatively low in relation to the Cumulative No-Project Conditions traffic volumes, the addition of this traffic exacerbates unacceptable LOS in the AM and/or PM peak hours, which leads to a significant impact.

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. These improvements are partially paid for with SJCOG regional transportation impact fees, which the project proponent will pay as part of the development process. Without these assumed improvements, freeway operations would be even worse than what was described previously.

Caltrans currently does not have any plans for further widening of SR 99 or SR 120. However, if each of the freeway segments were widened an additional lane, the project-related impact would be mitigated to a less-than-significant level. Without any plans to widen the freeway mainline segments, the impacts identified above are considered significant and unavoidable.

Impact TRA-8: Degradation of Freeway Ramp Junction Operations from Increased Traffic at SR 120 EB (Main Street Off-Ramp and Main Street On-Ramp); SR 120 WB (Main Street Off-Ramp and Main Street On-Ramp); SR 99 NB (Austin Road Off-Ramp and Austin Road On-Ramp); and SR 99 SB (Austin Road/Moffat Boulevard Off-Ramp and Austin Road/Moffat Boulevard On-Ramp) (Significant and Unavoidable)

		Significant Impacts		
Ramp Junction		Evans Estates	Pillsbury Estates	Both Projects
Eastbound SR 120	Main St. off-ramp	X	X	X
	Main St. on-ramp	N/A	N/A	N/A
Westbound SR 120	Main St. off-ramp	N/A	N/A	N/A
	Main St. on-ramp	X	X	X
Northbound SR 99	Austin Rd. off-ramp	X	N/A	X
	Austin Rd. on-ramp	X	X	X
Southbound SR 99	Austin Rd./Moffat Blvd. off-ramp	N/A	N/A	N/A
	Austin Rd./Moffat Blvd. on-ramp	X	N/A	X

Source: Fehr & Peers 2008.

Main Street/SR 120 Ramp Junctions

As described above under the discussion of Impact TRA-5a, the proposed improvements at the Main Street/SR 120 and Union Road/SR 120 interchanges would improve ramp terminal intersection operations by adding additional turn lanes. As part of these interchange improvements, auxiliary lanes are also being considered on SR 120 WB between Main Street and Union Road, but it is currently unknown if an auxiliary lane would be constructed on SR 120 EB between Main Street

and the SR 99 interchange. With the addition of these auxiliary lanes, the projects' impacts would be reduced to a less-than-significant level because the additional capacity created by the auxiliary lane would be greater than the additional traffic generated by the projects.

Implementation of Mitigation Measures TRA-5a and TRA-5c, which identified fair-share payments to improve the interchanges, would reduce this impact. However, since it is unknown if all the auxiliary lanes will be built, the Main Street/SR 120 ramp junction impact would remain significant and unavoidable.

Austin Road/SR 99 Ramp Junctions

Implementation of Mitigation Measure TRA-5f would reduce this impact to a less-than-significant level. The final design for the Austin Road/SR 99 interchange is still being developed as part of the PSR process, but it is likely that auxiliary lanes will be constructed when the interchange is relocated. However, as described in the discussion of Impact TRA-5b above, implementation of Mitigation Measure TRA-5f is considered infeasible because of financial constraints. Therefore, the impacts at the Austin Road/SR 99 ramp junctions are considered significant and unavoidable.

Chapter 12
Utilities and Service Systems

Introduction

This chapter describes the impacts of the Evans Estates–Pillsbury Estates Project (proposed project) on utilities and service systems, including police and fire; education; parks and recreation; solid waste; wastewater collection, capacity, and treatment (sewer); and communications and energy. Impacts related to water supply and drainage can be found in Chapter 9, "Hydrology and Water Quality," of this document. The following key sources of data were used in the preparation of this section.

- *City of Manteca General Plan 2023* (City of Manteca 2003)
- *City of Manteca General Plan 2023 Environmental Impact Report* (Wade Associates 2003)

Environmental Setting

This section discusses the existing conditions related to utilities and public services at the project site. State and local regulations related to utilities and public services that would apply to the proposed project are also discussed.

Regulatory Setting

Federal

There are no specific federal regulations that apply to utilities and service systems associated with the proposed project.

State

Solid Waste Management

California Integrated Waste Management Act

In 1989, Assembly Bill (AB) 939, known as the California Integrated Waste Management Act, was passed into law. Enactment of AB 939 established the California Integrated Waste Management Board (CIWMB) and set forth aggressive solid waste diversion requirements. Under AB 939, cities and counties were required to divert at least 25% of their solid waste from landfills by 1995 and at least 50% by 2000, through recycling, reuse, composting, and other means. In addition, AB 939 requires counties to prepare a Countywide Integrated Waste Management Plan (CIWMP). An adequate CIWMP contains a summary plan that includes goals and objectives, a summary of waste management issues and problems identified in the incorporated and unincorporated areas of the county, a summary of waste management programs and infrastructure, existing and proposed solid waste facilities, and an overview of specific steps that will be taken to achieve the goals outlined in the components of the CIWMP (California Integrated Waste Management Board 1993).

Fire Protection

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration requires the presence of a minimum of four firefighters before the use of respirators, which are required for entry into an enclosed space filled with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. Therefore, a minimum of four firefighters is required in order to respond to most fire incidents.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies. CPUC is responsible for assuring California utility customers have safe, reliable utility service at reasonable rates, protecting utility customers from fraud, and promoting the health of California's economy.

Electricity

CPUC has permitting authority over the construction of new and expanded power plants, electric transmission lines, and substations. The CPUC Utilities Safety Branch audits utility overhead and underground electric facilities through random field inspections.

Natural Gas

CPUC regulates local natural gas distribution facilities and services, as well as intrastate pipelines. CPUC published the *California Natural Gas Infrastructure*

Outlook: 2002–2006, which concluded that the Pacific Gas & Electric (PG&E) natural gas infrastructure would be sufficient through 2006 (California Public Utilities Commission 2001).

Local

City of Manteca General Plan 2023

The *City of Manteca General Plan 2023* (City General Plan) identifies the community's land use, transportation, environmental, economic, and social goals and policies as they relate to land use, conservation, and development. The following City General Plan goals and policies for utilities and services may relate to the proposed project (City of Manteca 2003).

Policies: Land Use

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

Goals: Sewer

PF-8. Maintain an adequate level of service in the City's sewage collection and disposal system to meet the needs of existing and projected development.

Policies: Wastewater Collection and Treatment

PF-P-18. Ensure wastewater collection and treatment for all development in the city and the safe disposal of wastes.

PF-P-19. The City will maintain capacity to process combined residential, commercial, and industrial flow.

PF-P-20. The City shall develop new sewage treatment and trunk line capacity as necessary to serve new development.

PF-P-21. City sewer services will not be extended to unincorporated areas, except in extraordinary circumstances. Existing commitments for sewer service outside the city limits shall continue to be honored.

PF-P-24. Ensure that all new development provides for and funds a fair share of the costs for adequate sewer distributions, including line extensions, easements, and plant expansions.

PF-P-25. The City will maintain the ability to handle peak discharge flow while meeting State Regional Water Quality Control Board standards as established in the current NPDES permit.

Implementation: Wastewater Collection and Treatment

PF-I-9. The City will require all sewage generators within its service area to connect to the City's system, except those areas where onsite treatment and disposal facilities are deemed appropriate.

PF-I-12. The City will promote reduced wastewater system demand through efficient water use by:

- requiring water-conserving design and equipment in new construction;
- encouraging retrofitting with water-conserving devices;
- designing wastewater systems to minimize inflow and infiltration to the extent economically feasible; and
- maintaining a citywide map of all sewer collection system components and monitoring the condition of the system on a regular basis.

Policies: Electric Service

PF-P-29. Ensure that reliable, adequate electric service is available to all users in the city.

Implementation: Electric Service

PF-I-15. The City will support energy conservation measures and innovative uses of solar energy, heat recovery, and co-generation in all structural and industrial processes.

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.

Policies: Solid Waste Management

PF-P-31. The City will implement and enforce the provisions of its Source Reduction and Recycling Element.

PF-P-32. The City shall support the continued use of the Lovelace Transfer Station on Lovelace Road, between Union Road and Airport Way, for the processing and shipping of solid waste materials.

Policies: Police Protection

PF-P-39. The City shall endeavor through adequate staffing and patrol arrangements to maintain the minimum feasible police response times for police calls.

PF-P-40. The City shall provide police services to serve the existing and projected population.

PF-P-41. The City will establish the criteria for determining the circumstances under which police service will be enhanced.

Implementation: Police Protection

PF-I-22. The Police Department shall continuously monitor response times and report annually on the results of the monitoring.

Policies: Fire Protection

PF-P-42. The City shall endeavor to maintain an overall fire insurance (ISO) rating of four (4) or better.

PF-P-43. The City shall endeavor through adequate staffing and station locations to maintain the minimum feasible response time for fire and emergency calls.

PF-P-44. The City shall provide fire services to serve the existing and projected population.

PF-P-45. The City will establish the criteria for determining the circumstances under which fire service will be enhanced.

Implementation: Fire Protection

PF-I-24. The Fire Department shall continuously monitor response times and report annually on the results of the monitoring.

PF-I-25. The Planning Commission and City Engineer will review proposed residential street patterns to evaluate the accessibility for fire engines and emergency response.

Goals: Education

PF-13. Maintain sufficient land inventory so that the Manteca Unified School District can provide for the educational needs of Manteca residents.

Policies: Education

PF-P-33. The City shall cooperate with the Manteca Unified School District and others in locating and reserving appropriate sites for new neighborhood walking distance schools. Adequate facilities shall be planned to accommodate new residential development and endeavor to create neighborhood schools.

PF-P-34. The City shall cooperate with the Manteca Unified School District in their collection of school facility development fees from new development.

PF-P-35. Financing of new school facilities will be planned concurrent with new development.

PF-P-36. The City and Manteca Unified School District will work together to develop criteria for the designation of school sites and consider opportunities for reducing the cost of land for school facilities. The City

will encourage the school district to comply with City standards in the design and landscaping of school facilities.

PF-P-37. The City will consider opportunities for joint-use of facilities with the school district. When feasible, a joint-use agreement will be pursued to maximize public use of facilities, minimize duplication of services provided, and facilitate shared financial and operational responsibilities.

PF-P-38. Schools must be located away from hazards of sensitive resource conservation areas, except where the proximity of resources may be of educational value and the protection of resources is reasonably assured.

Implementation: Education

PF-I-18. The City will maintain an inventory of public lands to identify opportunities for joint-use facilities and neighborhood schools.

PF-I-19. The City shall cooperate with the Manteca Unified School District to select a suitable location for a high school south of SR 120 and to select suitable locations within new residential development for neighborhood K-8 schools.

PF-I-20. The City will request an annual meeting with the Administrator and the Board of Trustees of the Manteca Unified School District to review development issues and opportunities for cooperation between the school district and the City.

PF-I-21. The City will encourage the expansion of higher education program offerings and opportunities in Manteca.

Policies: Parks and Recreation

PF-P-46. The City shall expand the community and neighborhood park system with the goal of providing park facilities within reasonable walking distance of all city residential areas.

PF-P-53. All new residential development will be required to pay a park acquisition and improvement fee, based on providing 5 acres per 1,000 residents, to fund system-wide improvements.

Existing Conditions

Information about existing conditions was compiled by reviewing relevant technical reports, conducting research on the Internet, and receiving personal communication. Table 12-1 identifies the public service, utility, and recreation providers that serve the project site.

Table 12-1. Summary of Public Service, Utility, and Recreation Providers Serving the Project Site

Public Service or Utility	Provider
Police	Manteca Police Department
Fire	Lathrop-Manteca Fire Protection District
Education	Manteca Unified School District
Parks	City of Manteca Parks and Recreation Department
Solid waste	City of Manteca Solid Waste Division; and Forward, Inc.
Wastewater	City of Manteca Wastewater Quality Control Facility
Electricity and natural gas	PG&E
Communication services	Verizon and Comcast

Police

The Manteca Police Department (MPD) serves Manteca, including the project site, with more than 83 authorized sworn officers (Bricker pers. comm.). MPD provides crime prevention for the residents of Manteca through community policing, neighborhood watch, proactive enforcement, and citizen involvement.

The only Manteca police station is located 2.9 miles northeast of the project site. MPD has tentative plans for the construction of a new station on Industrial Park Drive, near the intersection of South Main Street and State Route (SR) 120; however, construction of this new station is not anticipated for at least 5 years (Bricker pers. comm.). This facility would replace the existing police station. Officers are assigned to beats throughout Manteca to facilitate rapid response to all areas. Police response times are related more to the location of officers during their daily patrols than the location of the station. As such, the location of the new police station would have no impact on response times. (Bricker pers. comm.).

Fire and Emergency Services

Lathrop-Manteca Fire Protection District The project site is currently served by the Lathrop-Manteca Fire Protection District (LMFPD), which serves the township of Lathrop, rural Lathrop, and rural Manteca. Under the proposed project, the project site would be detached from LMFPD.

City of Manteca Fire Department

Upon detachment from LMFPD and annexation to the City, the project site would be served by the City of Manteca Fire Department (MFD), which provides fire protection service to Manteca. MFD responds to emergencies and calls for service from three fire stations located within the city limits. MFD is also responsible for responding to calls for emergency medical services (i.e., all

medical responses), service (e.g., odor investigation, public assistance, alarms sounding), and all other emergencies (e.g., vehicle accidents, hazardous materials, false alarms, citizen complaints). To maintain a standard level of care, all fire personnel are trained and certified Emergency Medical Technicians (EMTs), either EMT-1 or EMT-D.

The fire station nearest to the project site, Station #242, located just north of SR 120 on South Union Road, is approximately 2.65 miles from project site. The second nearest station is Station #241, located on West Louise Avenue, approximately 3.2 miles from the project site.

MFD maintains a minimum of three personnel per Engine Company. Its performance standards require that the first-due unit arrives on the scene of an emergency within an average of 5 minutes (City of Manteca Fire Department 2007).

Education

Within the City of Manteca, the Manteca Unified School District (MUSD) consists of four high schools, 20 elementary schools, two adult education schools, and two continuation high schools. Additionally, construction of another high school, Lathrop High School, is currently underway, and scheduled to open for the 2008/2009 school year. As of February 2008, MUSD had approximately 23,279 students (Villegas pers. comm.).

The closest high school to the project site is Manteca High School, located 2.3 miles northeast of the project site. Walter W. Woodward Elementary School is located 0.5 mile northeast of the project site (Manteca Unified School District 2008).

Schools follow both a traditional and year-round calendar. MUSD provides services to the cities of Manteca, Lathrop, and Stockton and the town of French Camp (Manteca Unified School District 2008). According to the *Manteca General Plan 2023 Draft Environmental Impact Report* (General Plan EIR), MUSD will select the location of additional new schools based on the location of new residential developments in the area (Wade Associates 2003).

Parks and Recreation

The Manteca Parks and Recreation Department currently provides 44 neighborhood parks and four community parks distributed throughout Manteca (Borba pers. comm.). These include 275 acres of neighborhood and community parks, the Tidewater Bikeway, a skate park, and a senior center. The department also supervises the operation of an 18-hole municipal golf course as well as library services (City of Manteca 2008d). Many parks are co-located with a small detention basin that serves a particular neighborhood. Consequently, the parks typically are located within easy walking distance for

local residents. The City has a service standard of 5 acres of parkland per 1,000 residents (Wade Associates 2003).

In addition, the Big League Dreams (BLD) Sports Park is a City-owned recreational sports complex that includes six softball/baseball fields, one covered sports pavilion, two Stadium Club restaurants, one snack bar, one maintenance building and yard, an eight-station batting cage, two playgrounds, and 600 vehicle parking spaces. The BLD is located north of SR 120, approximately 0.25 mile west of Airport Way (City of Manteca 2008e).

The closest existing park facility to the project site is Woodward Community Park, located approximately 1.25 miles to the northeast (City of Manteca 2008f).

Solid Waste

The City's Solid Waste Division collects solid and green waste throughout Manteca and deposits it at the Forward Landfill on South Austin Road (LeStrange pers. comm.). The total estimated permitted capacity of Forward Landfill is 51 million cubic yards, of which 27.3 million cubic yards are estimated to be used (California Integrated Waste Management Board 2008). Applying its 0.85 tons of waste per cubic yards conversion rate, the landfill still has space for approximately 24 million tons of solid waste (McClellon pers. comm.). If this rate of disposal continues as planned, the landfill is expected to close in 2020 (California Integrated Waste Management Board 2008).

Recyclables are taken to a mini transfer station adjacent to the Forward Landfill, where they are put into transfer trucks and hauled to Newby Island Sanitary Landfill in San Jose for processing (LeStrange pers. comm.).

Wastewater Collection, Capacity, and Treatment

The Manteca Wastewater Quality Control Facility (WQCF) currently treats approximately 6.5 million gallons per day (mgd) (City of Manteca 2008f). The WQCF is a combined biofilter-activated sludge plant owned and operated by the City. Secondary effluent is land-applied during spring and summer (flood irrigation for agricultural production) and tertiary treated effluent is discharged into the San Joaquin River during fall and winter (October through March) (Nolte 2006).

Expansion of the municipal waste collection system is planned to support development of Manteca as identified in the City General Plan. Phased improvements, known as Schedules A, B, and D (now complete) have increased the capacity of the treatment facility to 9.87 mgd; Schedule C is scheduled for completion in April 2010. The municipal treatment system capacity will be expanded through the addition of primary and secondary treatment units, as well as nitrification, denitrification, tertiary filtration, and ultraviolet (UV) disinfection to improve the effluent quality. The expansion includes additional

sludge digestion and dewatering units, as well as improvements to buildings, pump stations, ponds, and chemical handling facilities (Central Valley Regional Water Quality Control Board 2004). Schedules A and B, which consisted of the primary and secondary treatment units, the nitrification and denitrification units, pump station improvements, and building improvements, are complete. Schedule D, which was completed in October 2007, involved the construction of tertiary filtration and UV disinfection systems, ponds, and chemical handling facilities. Schedule C, scheduled for completion in April 2010, will involve the building of mechanical dewatering facilities, a maintenance building, and locker room facilities.

The City has recognized the need to design future facilities to accommodate average dry weather flows up to 27 mgd (Nolte 2006). The City's Public Facilities Implementation Program (PFIP) establishes level of service (LOS) standards for wastewater. The City's target is to collect and treat an average of 250 gallons per day per dwelling unit, which is the amount a typical single-family residence contributes to the system (DeGroot pers. comm.). This LOS standard is applicable both in the areas of Manteca that have already been developed and in the geographic areas where development is expected**.**

Electricity and Natural Gas

Electricity and natural gas in Manteca are supplied by PG&E, a private corporation. PG&E currently owns and operates electricity and natural-gas infrastructure within Manteca (City of Manteca 2008g). The City General Plan stipulates that utility lines be undergrounded in new development and redeveloped areas.

Communication Services

Telephone services in Manteca are provided by Verizon. The existing community is equipped with fiber-optic lines. Cable television services, as well as broadband Internet services, are provided by Comcast (City of Manteca 2008g). Internet services are provided through dial-up connections, ISDN, cable, and satellite services via a number of providers. Infrastructure is located generally in roadway rights-of-way. The City General Plan stipulates that utility lines be undergrounded in new development and redeveloped areas.

Impact Analysis

Thresholds of Significance

Thresholds of significance were determined based on Appendix G of the CEQA Guidelines and by using professional judgment and standard practices. An impact was considered to be significant if it would:

- exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- result in insufficient water supplies to serve the proposed project from existing entitlements and resources;
- result in a determination by the wastewater treatment provider that serves or may serve the proposed project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- be served by a landfill with insufficient permitted capacity to accommodate the proposed project's solid waste disposal needs;
- fail to comply with federal, state, and local statutes and regulations related to solid waste;
- result in disruption of or disturbances to the city's public services or utility services due to construction activities; or
- result in substantial adverse physical impacts associated with service ratios, response times, or other performance objectives for any public services, including schools, parks, police protection, or fire protection.

The potential impact related to insufficient capacity for a landfill to accommodate the proposed project's solid waste disposal needs was scoped out as part of the initial study prepared for the proposed project (Jones & Stokes 2005). Consequently, this issue is not further addressed in this EIR.

Impacts and Mitigation Measures

Impact USS-1: Temporary Construction-Related Impacts on Access Routes and Reduced Response Times for Police, Fire, and Emergency Services (Less than Significant)

Road closures or detours may occur during construction. Standard construction methods would be used to maintain access to all providers of emergency services. In addition, relevant police and fire departments with serving the project site would be notified of construction plans and schedules to prevent impacts on emergency response times while facilities are under construction. This impact would be less than significant. No mitigation is required.

Impact USS-2: Operational Impacts on Police Services, Including Inadequate Service Ratios and Response Times (Less than Significant)

The MPD station is located 2.9 miles northeast of the project site. MPD has tentative plans for the construction of a new station near the intersection of South Main Street and SR 120; however, construction of this new station is not anticipated for at least 5 years (Bricker pers. comm.). This proposed facility would replace the existing police station. Police response times are related more to the location of officers during their daily patrols than to the location of the station. There are no known issues with officers responding in a timely manner to calls south of SR 120 and the project site (Halford pers. comm.).

MPD currently has 83 sworn officers and maintains a service standard of one sworn officer per 1,000 residents. With a population of 66,451 residents, as of January 1, 2008, Manteca's current ratio of approximately one officer for every 801 residents is within the service standard (California Department of Finance 2008). The proposed project would contribute approximately 2,643 residents to Manteca; the average household size in Manteca is 3.07 persons per housing unit, according to the Housing Element of the City General Plan. This increase in population would result in an officer-to-resident ratio of 1:846, which is still within the established service standard. Impact PFS-6 in the General Plan EIR found that impacts on police protection as a result of City General Plan buildout would be less than significant with the implementation of City General Plan policies PF-P-39 through PF-P-41 and PF-I-22 (Wade Associates 2003).

Because the proposed project's contribution to population in Manteca would not result in an inadequate officer-to-resident service ratio or inadequate response times, this impact is considered less than significant. No mitigation is required.

Impact USS-3: Operational Impacts on Fire Services, Including Inadequate Service Ratios, Response Times, and Water Pressure and Supply for Fire Suppression (Less than Significant)

The service standard, as established in the City General Plan, is an average 5-minute response time for all emergencies. Station #242, located at South Union Road, is approximately 2.65 miles northwest of the project site and would provide the first response to emergencies on the project site. The response time would be less than 5 minutes, and no additional fire station would be needed. Additionally, impacts on fire protection personnel would be minimized by City General Plan goals and policies.

Fire protection also requires adequate water pressure and supply. The water service standard for fire suppression in Manteca is 1,250 gallons per minute for low-density residential uses. The City's 2005 *Water Master Plan* (City of Manteca 2005) uses the General Plan study area, which includes the project site. Because the *Water Master Plan* anticipates serving the General Plan study area,

water supply for fire suppression purposes is anticipated to be adequate (Wade Associates 2003). In addition, Impact PFS-6 in Chapter 14 of the General Plan EIR finds that implementation of General Plan policies PF-P-42 through PF-P-45, PF-I-24, and PF-I-25—along with the *Water Master Plan*, the PFIP, and participation in the South San Joaquin Irrigation District Surface Water Supply Project—would not result in substantial impacts related to water supply for fire suppression (Wade Associates 2003).

Because the proposed project would not result in impacts on fire service, including adequate service ratios, response times, and water supply for fire suppression, this impact is considered less than significant, and no mitigation is required.

Impact USS-4: Inadequate Service Ratios at Schools Serving the Project Site (Less than Significant)

The closest high school to the project area is Manteca High School, located 2.3 miles northeast. Woodward Elementary School is located 0.5 mile northeast of the proposed project site. Additionally, construction of another high school, Lathrop High School, is currently underway, and scheduled to open for the 2008/2009 school year. The projected increases in enrollment at these schools are based on the average number of students per residential unit on the project site, as shown in Table 12-2.

Table 12-2. Projected Increases in School Enrollment Resulting from the Proposed Project

Grade Level	Calculation	Number of Students
Kindergarten–6	0.534 students x 861 single-family residences =	460
7–8	0.147 students x 861 single-family residences =	127
9–12	0.267 students x 861 single-family residences =	230
Total:	**0.948 students x 575 single-family residences =**	**817**

Note: Because the subtotals are rounded, the total does not precisely match the sum of the calculations.

Impact PFS-6 in Chapter 14 of the General Plan EIR found that impacts on schools as a result of General Plan buildout would be less than significant with implementation of General Plan goal PF-13, policies PF-P-32 through PF-P-38, and policies PF-I-18 through PF-I-21.

Because the proposed project would result in an increase of approximately 817 students in project area schools, impacts on school service ratios are considered significant. Developer fees paid through the building permit process would be used to cover the cost of new school facilities. The payment of school impact fees, in accordance with California Government Code 65995, would reduce potential impacts on these schools to less-than-significant levels. Therefore, the impact would be less than significant. No mitigation is required.

Impact USS-5: Provision of Parks and Recreational Facilities (Less than Significant)

The closest existing park facility to the project site is Woodward Community Park, located approximately 1.25 miles to the northeast. The projected population for the project site is 2,643 persons, when the average Manteca household size of 3.07 persons (City of Manteca 2003) is multiplied by 861 new residential units. The population growth associated with the proposed project would increase the use of existing park facilities in the vicinity of the project site and require approximately 13 additional acres of parkland per the City's requirement of 5 acres of park land per 1,000 residents.

The City General Plan requires payment of a park acquisition and improvement fee, based on providing 5 acres per 1,000 residents, to fund systemwide improvements (Policy PF-P-53). Manteca Municipal Code also allows developers of new subdivisions of 20 acres or more to dedicate land for park and recreation purposes in lieu of the park acquisition and improvement fee (Manteca Municipal Code Section 3.20.090). To offset the demands placed on existing recreational and other public facilities in Manteca, the proposed project includes the development of a 10.06-acre park/detention basin in the center of the Evans Estates site and a 5-acre park/detention basin on the Pillsbury Estates site. Therefore, this acreage complies with the required parkland dedication in lieu of paying the park acquisition and improvement fee. As set forth in the Manteca Municipal Code, the proposed parkland dedication must be reviewed by the Planning Commission, and accepted by the City Council. If the parkland dedication is rejected by City Council, the applicants shall pay the regular park acquisition and improvement fee as required in Manteca Municipal Code Section 3.20.090.

Since the proposed project includes development of approximately 15.06 acres of park/detention basin, which meets the City's requirement of 5 acres of park land per 1,000 residents, and the Manteca Municipal Code would require payment of the park acquisition and improvement fee should the parkland dedication be rejected by the City Council, the impact to parks and recreational facilities would be less than significant.

Impact USS-6: Expansion or Construction of New Wastewater Collection, Conveyance, or Treatment Facilities (Less than Significant)

The existing homes on the project site are currently served by septic systems. These septic systems are required to be properly abandoned upon project implementation in accordance with the San Joaquin County Environmental Health Department (see Mitigation Measure HAZ-2e: Properly Abandon Septic Systems). The project site, including existing homes, would be served by City wastewater facilities upon project development.

The City has nearly completed a significant facility upgrade and expansion of its WQCF. Plant upgrades were required to comply with increased state wastewater (discharge) requirements as well as to ensure that the WQCF will be able to continue to serve the existing customers within the Manteca. The facility expansion also provides for additional growth within the Manteca.

The WQCF Phase III project was planned for construction in four stages, or schedules. The City has completed Schedules A, B, and D, and plans to construct the Schedule C improvements in April 2010.

The WQCF has capacity for 9.87 mgd; it currently treats approximately 6.5 mgd. The connection fee analysis used to calculate the number of gallons per day per dwelling unit contained in the City's *Draft Sewer Rate Study* (Ecologic 2008) assumed 250 gallons per day per dwelling unit. Based on this assumption, the proposed project's 861 new residential units would contribute 215,250 gallons per day of wastewater to the system, bringing the total amount of treated wastewater in Manteca to approximately 6.72 mgd, still well within the current capacity for treatment. In addition, payment for sewer connection fees will be paid for by the project proponents. Therefore, the proposed project's contribution to wastewater treatment is less than significant.

The proposed project calls for sewer lines to be connected to the City sewer system. Ultimately, wastewater will flow south of the project site by gravity flow to the South Manteca Trunk Sewer (SMTS), located in the future McKinley Avenue. However, the SMTS will be constructed when sufficient funds are collected through development fees, and may not be constructed prior to this subdivision. In this case, an interim system would be utilized. Proposed interim systems are shown on the Master Utility Plans, and may include temporary connection to the 10-inch sewer lines on Woodward Avenue and Pillsbury Road. These interim systems would be subject to City approval and designed based on availability of downstream capacity.

Impact USS-7: Inadequate Energy Sources and Infrastructure (Less than Significant)

The General Plan EIR identified energy demand as a prominent issue in recent years, as reflected in increasing energy costs, blackouts, brownouts, and scheduled outages. CPUC (2001) concluded that PG&E's natural-gas infrastructure would be sufficient through 2006. The General Plan's Public Facilities and Services Element and Resource Conservation Element also provide measures to reduce electricity demand and infrastructure expansion, including support of conservation measures, alternative-energy use, and land use and circulation improvements.

Project development plans would provide unrestricted utility access and prevent easement encroachments that might impair the safe and reliable maintenance and operation of PG&E's facilities. If improvements to PG&E's facilities are needed for the proposed project, the project proponent would coordinate with PG&E to

ensure the improvements are formally requested from and approved by CPUC prior to project development. Therefore, this impact is less than significant.

Impact USS-8: Temporary, Planned, or Accidental Construction-Related Disruptions to Utility Services (Less than Significant with Mitigation)

Utility services could be disrupted as a result of project construction. In most cases, impacts on utilities and services involve temporary disruptions that would not exceed 1 day. All utility lines and cables that would be disrupted during project construction would be identified during the project design phase. The design would include a detailed engineering and construction plan, which would thoroughly describe construction techniques and protective measures for minimizing impacts on utilities. Reasonable efforts would be made to provide a temporary bypass around the affected utilities during construction so interruptions to service are eliminated or minimized. Review of this plan by special service districts and utility providers in the project area would be required; as such, the City and the project proponents would coordinate with utility owners prior to project construction.

Temporary and accidental impacts on small utility lines, such as telephone or cable lines, would be considered adverse but not significant, because the affected area and duration of the impacts would be limited. However, disruptions to major utility lines, such as natural-gas or sewer lines, would be considered significant. This impact would be significant, but implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Mitigation Measure USS-8: Identify and Relocate Existing Utilities Where Necessary

Project design and specifications will identify all underground utilities in the areas of proposed excavations. Underground Service Alert will be contacted to identify underground utilities. Where possible, existing utilities will be avoided to minimize or eliminate interruptions to service during project construction. In instances in which utilities cannot be avoided, the relocation of existing utilities will be completed either before or during project construction by the project proponent.

Chapter 13
Other CEQA Considerations

This chapter addresses the growth-inducing impacts, cumulative impacts, significant and unavoidable impacts, and significant irreversible environmental changes of the Evans Estates–Pillsbury Estate Project (proposed project).

Growth-Inducing Impacts

The CEQA Guidelines require an environmental impact report (EIR) to discuss the ways in which a project may foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth (CEQA Guidelines Section 15126.2(d)). The guidelines provide that growth in an area is not necessarily beneficial, detrimental, or of little significance to the environment.

Growth can be induced in several ways, including the elimination of obstacles to growth or stimulation of economic activity within a region. According to the standards of significance contained in CEQA, a project is considered either directly or indirectly growth-inducing if it:

- fosters economic or population growth or additional housing;
- removes obstacles to growth (e.g., through development of physical infrastructure, roadways, and utilities); or
- taxes community services or facilities to such an extent that new services or facilities would be necessary.

Impact GI-1: Fosters Economic or Population Growth or Additional Housing (Less than Significant)

The proposed project would add 861 new single-family homes to the project site. This would represent an addition of approximately 2,643 people in Manteca, using an average household size of 3.07 people as cited in the *City of Manteca General Plan 2023* (City General Plan) (City of Manteca 2003).

The project site, which is in the City's Sphere of Influence (SOI), is currently designated by the City as Low-, Medium- and High-Density Residential (LDR,

MDR, HDR). The proposed project would implement planned growth as called for in the City General Plan. Furthermore, the project site is located within the City's Urban Services Boundary. Surrounding areas include land designated as LDR; applications have been filed for development of some of these lands, and some contain existing subdivisions. The City General Plan and *Manteca General Plan 2023 Draft Environmental Impact Report* (General Plan EIR) (Wade Associates 2003) provide for and address future growth in the City's SOI. The proposed project would be consistent with the City's growth plans and would not result in substantial growth above and beyond what is planned for in the City General Plan.

Therefore, the proposed project would not foster economic and/or population growth. This impact is considered less than significant.

Cumulative Impacts

CEQA Guidelines Section 15130(a) provides that "[a]n EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065(a)(3)." Section 15065(a)(3) defines "cumulatively considerable" to mean that the incremental effects of an individual project are significant when viewed in connection with the effects of past, current, and probable future projects.

Impact CE-1: Cumulative Loss of Agricultural Lands (Significant and Unavoidable)

The 2004–2006 edition of the *California Farmland Conversion Report* states that approximately 5,467 acres of Prime Farmland within San Joaquin County were converted to nonagricultural uses between 2004 and 2006 (California Department of Conservation 2008b). This continues a steady trend of conversion throughout the region. The General Plan EIR concluded that buildout of the City General Plan would result in the conversion of 5,912.8 acres of Prime Farmland, Farmland of Statewide Importance, and Farmland of Local Importance to nonagricultural uses (Wade Associates 2003). This was considered a potentially significant impact, and mitigation measures were identified to reduce this impact. The General Plan EIR concluded that the mitigation measures reduced the impact, but not to a less-than-significant level; therefore, the impact was considered significant and unavoidable.

The proposed project would irreversibly convert 240 acres of Farmland of Statewide Importance (California Department of Conservation 2008a) to nonagricultural uses. This conversion would contribute to the cumulative loss of farmland in the area and throughout the Central Valley, a significant impact.

Conversion of the project site would also result in increased conflicts between agricultural and urban uses, as well as a reduction in agricultural support services, resulting in pressures for other agricultural lands to be removed from

farming. This would be considered a significant cumulative impact. Implementation of Mitigation Measure AG-1a, which would require the project proponent to pay the agricultural mitigation fee prior to the issuance of building permits as required by Manteca Municipal Code Chapter 13.42, would reduce this impact, but not to a less-than-significant level. The proposed project's contribution to this cumulative impact is considered significant and unavoidable.

Impact CE-2: Cumulative Effect on Air Quality (Less Than Significant with Mitigation)

Several of the air quality impacts identified in Chapter 4, "Air Quality," could contribute to cumulative impacts in the vicinity of the project site. These impacts include temporary increases in construction-related emissions during construction activities and operational emissions from the proposed land uses and increased traffic volumes. The estimated area source and vehicle emissions for the proposed project would exceed the San Joaquin Valley Air Pollution Control District (SJVAPCD) thresholds summarized in Chapter 4, "Air Quality." However, cumulative impacts are considered less than significant with compliance with SJVAPCD Rule 9510. Mitigation Measure AIR-1e, which would incorporate innovative measures into the design and operation of the proposed project in order to provide additional reductions in the overall level of emissions, will help achieve the emissions reductions required by Rule 9510. In addition, implementation of Mitigation Measures AIR-1c, which would require the project proponent to enter into a developer agreement with SJVAPCD and conduct an air impact assessment, and AIR-1d, which would require the project proponent to enter into a development mitigation contract with SJVAPCD to mitigate or reduce project emissions beyond the requirements of Rule 9510 through the payment of fees (on a per-ton basis) to SJVAPCD, will ensure that cumulative impacts are less than significant.

Impact CE-3: Cumulative Increase in Greenhouse Gas Contaminant Emissions (Significant and Unavoidable)

As discussed in Chapter 4, "Air Quality," the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and SJVAPCD have not established any thresholds or guidance to evaluate impacts associated with greenhouse gas (GHG) emissions. This is because GHGs, especially carbon dioxide (CO_2), do not pose any health risks at ambient concentrations. The impacts associated with GHGs are long-term climatic changes, which are beyond the regulatory purview of SJVAPCD.

GHGs tend to accumulate in the atmosphere because of their relatively long lifespan; as a result, their impact on the atmosphere is mostly independent of the point of emission. GHG emissions are more appropriately evaluated on a regional, state, or even national scale than on an individual project level. The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment

Programme to assess scientific, technical, and socioeconomic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

As indicated in Tables 4-8 and 4-9 in Chapter 4, "Air Quality," project operations would result in 10,479.88 tons per year of CO_2. Because it is accepted that climate change due to GHGs is occurring, and even small contributions may be cumulatively considerable given the seriousness of the problem, the proposed project would constitute a cumulatively significant contribution to GHG emissions. Even with the implementation of Mitigation Measure CE-3 below, the proposed project's contribution to this cumulative impact is considered significant and unavoidable.

Mitigation Measure CE-3: Implement City of Manteca General Plan Policies for Energy Conservation

All of these policies work to reduce emissions of GHGs. Implementation of the City General Plan goals and policies to reduce energy-related impacts associated with climate change would work to reduce emissions of GHGs; however, the residual level of cumulative impacts associated with the proposed project would remain significant.

The City General Plan does not address climate change at this time. However, impact PFS-7 of the General Plan EIR states that the City General Plan would require expanded energy sources and infrastructure for the urban development anticipated in the City General Plan. City General Plan Goal PF-10 and Policies PF-P-28 and PF-I-14 to PF-I-16 would reduce energy-provision-related impacts by using conservation measures and expanding services throughout Manteca. General Plan Goal RC-3 and Policies RC-I-6, RC-I-8, RC-P-8, RC-I-10, and RC-I-11 would reduce impacts related to electricity and infrastructure expansion by using the following types of measures: energy conservation practices, conservation-minded building orientation and design, energy source alternatives (e.g., solar), land use and circulation improvements (e.g., reduction in length of vehicle trips), and interagency and interjurisdictional cooperation.

Transportation

As described in Chapter 11, "Transportation and Traffic," few future roadway improvements were assumed to be constructed under Cumulative No-Project Conditions because the updated PFIP fee has not yet been adopted by the Manteca City Council. Based on this assumption and considering the anticipated future growth, a large number of roadway facilities would not meet the City LOS standard. Chapter 11 describes potential impacts under the Cumulative No-Project Conditions and generally recommends improvements from the updated PFIP project list as mitigation measures. The cumulative conditions mitigation measures are summarized and shown on Figures 11-15A, 11-15B and 11-16. For

a full discussion of Cumulative Plus Project impacts and mitigation, see "Impacts and Mitigation Measures" under Chapter 11, "Transportation and Traffic."

Significant and Unavoidable Impacts

CEQA Guidelines Section 15126.2(b) and Public Resources Code Section 21100(b)(2)(A) require the discussion of any significant effect on the environment that cannot be avoided if the project is implemented, including those impacts which can be mitigated but not reduced to a level of insignificance. A significant and unavoidable impact is one that would cause a substantial adverse effect on the environment and for which no mitigation is available to reduce the impact to a less-than-significant level. The significant and unavoidable impacts of the proposed project are listed below.

- **Impact AG-1:** Direct Conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Other Farmland to Nonagricultural Use
- **Impact AIR-5:** Contribute to Cumulative Increase in Greenhouse Gas Contaminant Emissions
- **Impact NOI-2:** Exposure of Existing Noise-Sensitive Land Uses on Project Approach Roadways to Increased Traffic Noise
- **Impact TRA-4:** Impacts on the Transit System
- **Impact TRA-5b:** Degradation of Roadway Segment Operations from Increased Traffic at Moffat Boulevard, Between SR 99 SB Off Ramp and Austin Road, and Austin Road, Between SR 99 NB Ramps and Moffat Boulevard
- **Impact TRA-6b:** Degradation of Intersection Operations from Increased Traffic at Woodward Avenue/Moffat Boulevard, Moffat Boulevard/SR 99 SB Off-Ramp, Moffat Boulevard/Austin Road/SR 99 SB On Ramps, Austin Road/SR 99 NB Ramps, and Main Street/Yosemite Avenue
- **Impact TRA-7:** Degradation of Freeway Mainline Operations from Increased Traffic at SR 120 EB from Yosemite Avenue to Airport Way, Airport Way to Union Road, Union Road to Main Street, and Main Street to SR 99; SR 120 WB from SR 99 to Main Street, Main Street to Union Road, Union Road to Airport Way, Airport Way to Yosemite Avenue; SR 99 NB from Jack Tone Road to Austin Road, Austin Road to SR 120 (Weaving Section), and SR 120 to Yosemite Avenue (Weaving Section); and SR 99 SB from Yosemite Avenue to SR 120 (Weaving Section), SR 120 to Austin Road, and Austin Road to Jack Tone Road
- **Impact TRA-8:** Degradation of Freeway Ramp Junction Operations from Increased Traffic at SR 120 EB (Main Street Off-Ramp and Main Street On-Ramp); SR 120 WB (Main Street Off-Ramp and Main Street On-Ramp); SR 99 NB (Austin Road Off-Ramp and Austin Road On-Ramp); and SR 99 SB (Austin Road/Moffat Boulevard Off-Ramp and Austin Road/Moffat Boulevard On-Ramp)

Significant, Irreversible Environmental Changes

Section 15126.2(c) of the CEQA Guidelines provides the following direction for the discussion of irreversible changes:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements, which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that current consumption is justified.

The proposed project would result in an irreversible commitment of energy resources, primarily in the form of fossil fuels (e.g., fuel, oil, natural gas, and gasoline) for construction equipment, as well as consumption or destruction of other nonrenewable and slowly renewable resources (e.g., gravel, metals, and water). The proposed project would also result in the permanent conversion of agricultural lands to nonagricultural uses. This conversion would represent an irreversible commitment of land to another land use.

Chapter 14
Alternatives Analysis

Introduction and Overview

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) describe a reasonable range of feasible alternatives to the project or project location that could substantially reduce one or more of the project's significant environmental impacts while meeting most or all of its objectives. The EIR is required to analyze the potential environmental impacts of each alternative, though not at the same level of detail as the project. There must be sufficient detail to be able to compare the respective merits of the alternatives. Key provisions of CEQA Guidelines Section 15126.6 that pertain to alternatives analyses are summarized below.

- The discussion of alternatives shall focus on alternatives to the project or project location that are feasible, would meet most or all of the project objectives, and would substantially reduce one or more of its significant impacts.
- The range of alternatives must include the No-Project Alternative. The no-project analysis will discuss the existing conditions at the time the NOP was published, as well as conditions that would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. The No-Project Alternative is not required to be feasible, meet any of the project objectives, or reduce the project's expected impacts to any degree.
- The range of alternatives required is governed by a "rule of reason." The EIR must evaluate only those alternatives necessary to permit a reasoned choice. An EIR is not required to analyze every conceivable alternative to a project.
- An EIR does not need to consider an alternative whose effects cannot be reasonably ascertained, whose implementation is remote and speculative, and that would not achieve the basic project objectives.

Methodology and Screening Criteria

A range of potential alternatives was subjected to screening criteria to rule out those that do not qualify as alternatives under CEQA. There was no attempt to

include every conceivable alternative in this range. Rather, the EIR preparers considered several representative alternatives. The following criteria were used to screen potential alternatives.

- Does the alternative meet most or all of the project objectives?
- Is the alternative potentially feasible?
- Would the alternative substantially reduce one or more of the significant impacts associated with the project?

Project Objective

The objective of the proposed project is to provide additional residential opportunities for the expanding population of the City of Manteca. This project would help accommodate the growing community within the City's Primary Urban Service Boundary (Figure 2-2).

Feasibility

Based on the CEQA Guidelines, "feasible" is defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines Section 15364). CEQA does not require that an EIR determine the ultimate feasibility of a selected alternative, but rather that it is probably feasible. Accordingly, no economic studies have been prepared regarding the economic feasibility of the selected alternatives.

Significant Impacts

The alternative should provide a means of reducing the level of impacts that would otherwise result from implementation of the project. The following significant impacts would be associated with the proposed project. Where the proposed project would result in a significant and unavoidable impact, or where mitigation measures identified in the EIR would reduce potentially significant impacts to a less-than-significant level, these are identified below.

- **Agriculture:** Direct Conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Other Farmland to Nonagricultural Use (Significant and Unavoidable)
- **Air Quality:** Contribution to a Cumulative Increase in Greenhouse Gas Contaminant Emissions (Significant and Unavoidable); Generation of Emissions of ROG and NOx in Excess of SJVAPCD Thresholds (Less than Significant with Mitigation)
- **Biological Resources:** Potential Introduction or Spread of Invasive Species (Less than Significant with Mitigation); Impacts on Nesting Swainson's

Hawk and Non-Special-Status Migratory Birds (Less than Significant with Mitigation); Loss of Swainson's Hawk Foraging Habitat (Less than Significant with Mitigation); Loss of Potential Foraging Habitat for Other Special-Status Birds (Less than Significant with Mitigation); Impacts on Western Burrowing Owl (Less than Significant with Mitigation); Impacts on Roosting Bats (Less than Significant with Mitigation);

- **Cultural Resources:** Potential Destruction of Buried Archeological Resources (Less than Significant with Mitigation); Destruction or Disturbance of Human Remains (Less than Significant with Mitigation).
- **Geology:** Contribution to Substantial Soil Erosion or Loss of Topsoil (Less than Significant with Mitigation); Damage to Paleontological Resources (Less than Significant with Mitigation).
- **Hazardous Materials:** Potential Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials during Construction (Less than Significant with Mitigation); Potential Hazard to the Public or the Environment through Upset or Accident Conditions (Less than Significant with Mitigation)
- **Hydrology:** Impacts on Water Quality as a Result of Construction-Related Earth-Disturbing Activities (Less than Significant with Mitigation); Water Quality Impacts as a Result of Construction-Related Hazardous Materials (Less than Significant with Mitigation) Water Quality Impacts from Construction below the Water Table (Less than Significant with Mitigation) Change in Drainage Patterns and Surface Runoff (Less than Significant with Mitigation); Increased Amounts of Surface Runoff and Associated Impacts on Water Quality and Drainage Facilities during Operation (Less than Significant with Mitigation)**;** Insufficiency of Water Supply (Less than Significant with Mitigation).
- **Land Use:** Conflict with an Applicable Local Habitat Conservation Plan or Natural Community Conservation Plan (Less than Significant with Mitigation).
- **Noise and Vibration:** Exposure of Existing Noise-Sensitive Land Uses on Project Approach Roadways to Increased Traffic Noise (Significant and Unavoidable).
- **Transportation:**
  - Degradation of Intersection Operations from Increased Traffic at Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, and Main Street/Yosemite Avenue (Less than Significant with Mitigation);
  - Increased Demand for Bicycle Travel (Less than Significant with Mitigation);
  - Degradation of Roadway Segment Operations from Increased Traffic at Main Street, Between SR 120 WB Ramps and SR 120 EB Ramps, Between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; Union Road, between SR 120 WB Ramps and SR

120 EB Ramps, between SR 120 and Atherton Drive, and between Atherton Drive and Woodward Avenue; and Woodward Avenue, between Union Road and Main Street (Less than Significant with Mitigation);

- Degradation of Intersection Operations from Increased Traffic at Main Street/SR 120 WB Ramps, Main Street/SR 120 EB Ramps, Main Street/Atherton Drive, Main Street/Woodward Avenue, Union Road/SR 120 WB Ramps, Union Road/SR 120 EB Ramps, Union Road/Atherton Drive, Union Road/Woodward Avenue, Airport Way/Daniels Street, Airport Way/SR 120 WB Ramps, Airport Way/SR 120 EB Ramps, Airport Way/Atherton Drive, Airport Way/Woodward Avenue, and Woodward Avenue/Moffat Boulevard (Less than Significant with Mitigation);
- Impacts on the Transit System (Significant and Unavoidable);
- Degradation of Roadway Segment Operations from Increased Traffic at Moffat Boulevard, Between SR 99 SB Off Ramp and Austin Road, and Austin Road, Between SR 99 NB Ramps and Moffat Boulevard (Significant and Unavoidable);
- Degradation of Intersection Operations from Increased Traffic at Woodward Avenue/Moffat Boulevard, Moffat Boulevard/SR 99 SB Off-Ramp, Moffat Boulevard/Austin Road/SR 99 SB On Ramps, Austin Road/SR 99 NB Ramps, and Main Street/Yosemite Avenue (Significant and Unavoidable);
- Degradation of Freeway Mainline Operations from Increased Traffic at SR 120 EB from Yosemite Avenue to Airport Way, Airport Way to Union Road, Union Road to Main Street, and Main Street to SR 99; SR 120 WB from SR 99 to Main Street, Main Street to Union Road, Union Road to Airport Way, Airport Way to Yosemite Avenue; SR 99 NB from Jack Tone Road to Austin Road, Austin Road to SR 120 (Weaving Section), and SR 120 to Yosemite Avenue (Weaving Section); and SR 99 SB from Yosemite Avenue to SR 120 (Weaving Section), SR 120 to Austin Road, and Austin Road to Jack Tone Road (Significant and Unavoidable); and
- Degradation of Freeway Ramp Junction Operations from Increased Traffic at SR 120 EB (Main Street Off-Ramp and Main Street On-Ramp); SR 120 WB (Main Street Off-Ramp and Main Street On-Ramp); SR 99 NB (Austin Road Off-Ramp and Austin Road On-Ramp); and SR 99 SB (Austin Road/Moffat Boulevard Off-Ramp and Austin Road/Moffat Boulevard On-Ramp) (Significant and Unavoidable).

- **Utilities and Service Systems:** Temporary, Planned, or Accidental Construction-Related Disruptions to Utility Services (Less than Significant with Mitigation).
- **Cumulative Impacts:** Cumulative Loss of Agricultural Lands (Significant and Unavoidable; Cumulative Increase in Greenhouse Gas Contaminant Emissions (Significant and Unavoidable)

Alternatives Development

The significant impacts listed above were evaluated to identify alternatives that could reduce one or more impacts to a less-than-significant level. Significant impacts included those found to be significant and unavoidable as well as those that could be reduced to a less-than-significant level with mitigation. Through this process, alternatives were either considered and rejected or analyzed, as described below.

Alternatives Considered but Rejected

Alternative 1: Alternative Site

This alternative focuses on alternative locations for development of the proposed project. This alternative considers that the project would proceed within the Primary Urban Service Boundary (Figure 2-2), consistent with the provisions of the *City of Manteca General Plan 2023* (City General Plan). The objective is to determine whether any of the significant project impacts, if fully implemented, would be avoided or substantially lessened by relocating the project.

The objective of the proposed project is to provide housing to accommodate expected population growth. Most of the possible alternative sites within the City's SOI have already been proposed for development by other developers. Potential alternative sites are similar to the project site in topography and land use. Most are also currently in agricultural use and would, have environmental sensitivity comparable to the proposed project and likely the same level of impacts. Affected roadways, including major arterials and freeway facilities, would be affected by traffic in any part of Manteca. Significant air quality impacts, particularly generation of significant levels of emissions from project construction, would also be the same as under the proposed project.

The City General Plan Housing Element identifies land available for development with housing on Figure 12-25. As shown on this figure, little undeveloped land is available for housing development within the existing city limits. The Housing Element identifies an opportunity for development on infill housing on sites designated for Commercial Mixed Use Development. These sites are small and designated for the development of high-density housing. No infill sites are available for development of a single-family housing project in the range of units meeting the objectives of the proposed project.

For these reasons, no alternative site is available for development of the proposed project that would result in a substantial reduction of the environmental impacts identified in the impact analysis in this document.

Alternative 2: Reduced Density

Under this alternative, the number of residential units would be reduced by an undetermined amount to lessen the traffic and transportation impacts of the proposed project. The traffic analysis shows that traffic impacts on local roadways can be mitigated through local roadway improvements. The number of new residential units would need to be reduced substantially to effect the required roadway improvements. This level of reduction in housing units would make the project infeasible. Further, as described in the assessment of the traffic impacts of the proposed project, freeway operation with or without the project would be at unacceptable levels, so no amount of reduction in the size of the project would address the freeway impacts. Therefore, Alternative 2 would not substantially reduce the traffic impacts to a less-than-significant level; this alternative was not considered further.

Alternative 3: Reduced Footprint

Under this alternative, the footprint of the proposed project would be reduced by an undetermined size to lessen the project's impacts on agricultural resources. A reduced project footprint would decrease the acres of Farmland of Statewide Importance lands converted to other nonagricultural uses. Reduction of the footprint to a size that would significantly reduce conversion of farmlands would likely make the project infeasible. Furthermore, development of even a much smaller footprint could not fully mitigate the direct conversion of Farmland of Statewide Importance to other nonagricultural uses. This impact would remain significant and unavoidable, even with a reduced footprint. Therefore, although impacts to air, noise, and traffic could be reduced from a smaller scale project, Alternative 3 would not substantially reduce the agricultural impacts of the project to a less-than-significant level; this alternative was not considered further.

Alternatives Analyzed

Alternative 4: Commercial Mixed Use Alternative

The City General Plan Housing Element (City of Manteca 2003) identifies a Commercial Mixed Use (CMU) designation. This designation allows for a mixture of commercial, office, and high-density residential uses. Under this category, all infill development will be allocated for high-density residential, with an average of 25% of all CMU-designated land being developed for high-density residential at an average density of 25 units per 20 acres.

This alternative would apply the CMU designation across the entire project site, providing flexibility in the design of the project site, with the possibility of inclusion of a mix of retail, professional office, business park, and high-density residential uses. Modifications in the project design and plan layout may result

in increased ease of traffic flow within the project site and greater access to connecting roadways and freeway access.

Because there is no specific proposal for 240 acres of CMU, this EIR cannot precisely forecast the impacts of this alternative. The following basic assumptions underlie this potential development scenario.

- Approximately 25% of the site would be used for high-density residential use.
- Approximately 15% of the site would be used for low-density residential use.
- Approximately 20% of the site would be used for roads.
- The remaining 40% of the site would be evenly divided between the possible categories as outlined in the City General Plan (10% each would be used for commercial, parks/open space, professional, and retail uses).

Alternative 4 would result in greater intensity of use than the proposed project. Design changes associated with mixed-use development would improve traffic circulation thus reducing traffic impacts immediately adjacent to the project site. However, it is unlikely that all traffic impacts would be reduced to a less-than-significant level. Additionally, traffic impacts associated with local freeway mainline segments and ramps would not be reduced. Furthermore, the mixed-use nature of this alternative would require careful site planning and design to avoid impacts associated with locating incompatible uses (e.g., commercial or retail) adjacent to the existing single-family subdivisions located immediately north of the project site. Under this alternative, all other impacts would generally remain the same as for the proposed project. Furthermore, this alternative meets the project goal of providing housing to accommodate growth in Manteca while conforming to the City General Plan Housing Element.

Alternative 5: Alternative Tentative Map for Evans Estates and Pillsbury Estates

This alternative would result in development of a smaller number of housing units (lower overall density) than under the proposed project, but with a different configuration of the project site. The proposed project includes the development of 861 new single-family homes and preservation of two existing homes on 240 acres, an overall density of 3.6 dwelling units per acre (du/a). The project site is located on land designated by the City General Plan as LDR, which allows a range of density between 2.1 and 8 du/ac).

Under Alternative 5, single-family housing units would be constructed at about 2.1 units per acre (the minimum density allowed under the LDR designation), resulting in approximately 500 single-family homes. At this reduced density, all impacts would generally remain the same as for the proposed project, except that the configuration could reduce impacts related to the anticipated LOS or trips generated.

Although this alternative would still meet the project objective to provide additional residential opportunities for the expanding population of the City, it could result in conflicts with City General Plan goals and policies related to compact development. As provided in the City General Plan, the City supports the existing level of agricultural production by directing development in a compact, concentric form to reduce the demand for new development areas (City of Manteca 2003). Specifically, the Community Design Element addresses the community form and quality of the built environment, and includes Goal CD-1 to "[r]etain the compact and cohesive community form of the City." Building fewer housing units at the project site could necessitate the City to seek development opportunities to meet its housing goals; it is very likely that these areas would be in agricultural use and not located within the City's SOI.

Alternative 6: No-Project Alternative (No Development)

Under this alternative, the proposed project would not be constructed and no construction activities would occur at the project site. The southwest and northeast portions of the Evans Estates site and most of the Pillsbury Estates site are currently used for agriculture (almond orchards). Existing structures at the project site includes four residences and a barn on the Evans Estates site and one residence on the Pillsbury Estates site. This alternative is included to allow for comparison of the impacts caused by approval of the project with the impacts that would result if the site were not developed.

Under this alternative, the existing physical conditions of the site would continue as described under "Environmental Setting" of Chapters 3 through 12. There would be no changes to the physical or visual character of the site. No project-generated traffic would be added to area roadways, and no new air pollutant emissions or noise would be generated from the site. There would be no changes to the existing hydrology or water quality. Under this alternative, none of the impacts under the proposed project would occur.

This alternative would not be consistent with the goals of the City General Plan (City of Manteca 2003) or the project objectives.

Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) requires that an EIR identify which alternative is the environmentally superior alternative. If the No-Project Alternative is the environmentally superior alternative, the EIR must also identify which of the other alternatives is environmentally superior. Based on the preceding discussion, the No-Project Alternative would be the environmentally superior alternative. Therefore, the environmentally superior alternative among the remaining alternatives must also be identified. Based on the comparison presented in this chapter, Alternative 5 would be the environmentally superior alternative because it would reduce impacts related to the anticipated LOS or trips generated, while meeting project objectives. However, Alternative 5 would

result in potential conflicts with City General Plan goals and policies related to community design, land use, and agricultural resources. Because Alternative 5 would develop fewer housing units on the same footprint as the proposed project, it could also result in impacts related to sprawl and additional cumulative impacts to agricultural lands if it causes the City to seek other developable lands in and around the City and the County to meet its housing goals.

Chapter 15
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Personal Communications

Allen, James, MS, PG. University staff member and paleontological consultant. California State University, East Bay, *Hayward*, CA. March 7, 2008—telephone and email communication regarding potential for Riverbank Formation deposits to underlie project site.

Barber, Daniel. Air Quality Specialist. San Joaquin Valley Air Pollution Control District, Fresno, CA. March 14, 2007—telephone conversation with Shannon Hatcher of Jones & Stokes, regarding Rule 9510.

Borba, Carla. Office Assistant. City of Manteca Parks and Recreation Department, Manteca, CA. March 3, 2008—telephone conversation regarding neighborhood and community park counts.

Bricker, David. Chief of Police. City of Manteca Police Department, Manteca, CA. January 12, 2009—telephone conversation and e-mail communication regarding Manteca Police Department current and projected police services.

Brieland, Chris. Senior Transportation Engineer. Fehr & Peers. August 26, 2008—email of PDF files containing roadway and intersection data.

Cadrett, John. CEQA Coordinator. San Joaquin Valley Unified Air Pollution Control District, Modesto, CA. June 15, 2005—telephone conversation with Shannon Hatcher of Jones & Stokes regarding, compliance with revised SJVAPCD Regulation VIII.

DeGroot, Jason. Senior Engineer. City of Manteca Public Works Department. March 4, 2008—telephone conversation regarding the City's Public Facilities Implementation Program.

Guerra, Hector. Senior Air Quality Planner, San Joaquin Valley Unified Air Pollution Control District. September 26, 2003—telephone conversation with Shannon Hatcher of Jones & Stokes, regarding health risk assessment procedures for diesel exhaust from construction equipment in the San Joaquin Valley Air Basin.

Halford, Charles M. Chief of Police. Manteca Police Department. February 21, 2008—telephone conversation regarding sworn officers, station move, and response times.

LeStrange, Rexie. Assistant Superintendent/Recycling Coordinator. City of Manteca Solid Waste Department. March 6, 2008—telephone conversation regarding solid waste disposal and recycling for the City of Manteca.

Manding, Angela. Business Manager. Manteca-Lathrop Rural County Fire Protection District. March 3, 2008—telephone conversation regarding staffing ISO rating and response times.

Manding, Fred. Fire Chief (Station 31). Manteca-Lathrop Rural County Fire Protection District. March 5, 2008—telephone conversation regarding staffing and response times.

McClellon, Robert. Program Coordinator. Environmental Health Department, County of San Joaquin. July 23, 2007—phone conversation regarding remaining capacity of Forward Landfill, Inc.

Villegas, Martha. Secretary. Manteca Unified School District. February 6, 2008—telephone conversation regarding enrollment and existing and future school facilities.

Chapter 16
List of Preparers

Lead Agency

City of Manteca

Community Development Department, Planning Division
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ICF Jones & Stokes

Name	Role	Education	Experience
Sally Zeff, AICP	Project Director, CEQA Review, QA/QC	M.U.P., Urban Planning B.A., Medieval Studies	24 years
Bonnie Chiu	Project Manager, Other CEQA Considerations, Alternatives, Hazards and Hazardous Materials	B.A., Political Science—Public Service, Environmental Policy and Planning	6 years
Erin Hitchcock	Section Author—Biological Resources (wildlife)	B.S., Wildlife, Fisheries, and Conservation Biology	6 years
Jessica Cook	Section Author—Biological Resources (plants)	M.S., Botany and Plant Pathology B.S., Biology	3.5 years
Stephanie Myers	Peer Review—Biological Resources	M.S., Avian Sciences B.A., Biology	20 years
Hina Gupta	Section Author—Agriculture, Land Use and Planning	M.P.L., Planning B.A., Planning and Architecture	1.5 years
Jacob Collins	Section Author—Hydrology and Water Quality	B.A., Environmental Studies	5 years
Nate Martin	Peer Review—Hydrology and Water Quality	M.P.A., Public Policy and Administration B.A., Environmental Studies	8 years

Name	Role	Education	Experience
Deborah Bartley	Lead Editor	B.A., Political Science—International Relations	9 years
Brent Bouldin	Technical Editor—Noise	M.A., Communications B.S., Communications	30 years
Kate Walsh	Publication Specialist	B.A., Art History B.A., Photography	8 years
Senh Saelee	Graphic Artist—Figures	B.S., Environmental Design, Visual Communications	8 years
Lindsay Christensen	Section Author—Air Quality	B.S., Community and Regional Development	1.5 years
Shannon Hatcher	Peer Review—Air Quality	B.S., Environmental Science B.S., Environmental Health and Safety	8 years
Jason Volk	Section Author—Noise	B.S., Mechanical Engineering	6 years
Beth Eggerts	Section Author—Utilities and Service Systems	B.A., International Relations, Economic Development	2 years
Andrew Martin	Section Author—Geology, Soils and Paleontology	M.S., Environmental Studies B.A., Biology	12 years
Katie Haley	Section Co-Author—Cultural Resources (Architectural History)	M.A., Public History	5.5 years
Christiaan Havelaar	Section Co-Author—Cultural Resources (Archaeology)	B.A., Anthropology	12 years

Fehr & Peers

Name	Role	Education	Experience
John Gard	Principal in Charge	M.S., Civil Engineering B.S., Mathematics	15 years
Chris Breiland	Project Manager Section Author—Transportation and Traffic	M.S., Transportation Engineering B.S., Environmental and Transportation Planning	4 years
Aaron Hoyt	Technical Analyst	B.S., Geography	5 years