

**DRAFT**  
**Environmental Impact Report**  
**Baldwin Master Plan / Zacharias Master Plan Project**  
**City of Patterson, Stanislaus County, California**

**State Clearinghouse No. 2018122052**

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## ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius (Centigrade)
°F	degrees Fahrenheit
µg/m <sup>3</sup>	micrograms per cubic meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ACM	asbestos-containing material
ADT	average daily traffic
ADT	average daily traffic
AF	acre-foot
AFY	acre-feet per year
AFY	acre-feet/year
AIRFA	American Indian Religious Freedom Act
AMG	Advanced Mobility Group
APCD	Air Pollution Control District
APE	Area of Potential Effect
APN	Assessor's Parcel Number
AQGGP	Air Quality Guidelines for General Plans
AQI	Air Quality Index
AQMD	Air Quality Management
AQP	air quality plan
ARB	California Air Resources Board
ARPA	Archaeological Resources Protection Act
AST	aboveground storage tank
ATCM	Airborne Toxic Control Measures
BAU	business as usual
BCF	billion cubic feet
BCF/year	billion cubic feet per year
BMP	Best Management Practice
BP	Before Present
BPS	Best Performance Standard
BVOC	biogenic volatile organic compound
C2ES	Center for Climate and Energy Solutions
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection

Acronyms and Abbreviations

Cal OSHA	California Occupational Health and Safety Administration
Cal/EPA	California Environmental Protection Agency
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CAPCOA	California Air Pollution Control Officers Association
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCIC	Central California Information Center
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEG	Certified Engineering Geologist
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CHL	California Historical Landmarks
CHP	California Highway Patrol
CIMIS	California Irrigation Management Information System
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNPSEI	California Native Plant Society's Electronic Inventory
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
CPHI	California Points of Historical Interest
CPUC	California Public Utilities Code
CRHR	California Register of Historical Resources
CRNA	California Natural Resources Agency
CUPA	Certified Unified Program Agency
CWC	California Water Code
dB	decibel

dba	A-weighted decibel
dba/DD	doubling of the distance
DOT	United States Department of Transportation
DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EJ	environmental justice
EMFAC	Emission Factors
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
ETRIIP	Employer Trip Reduction Implementation Plan
EVA	Emergency Vehicle Access
FAA	Federal Aviation Administration
FAR	floor area ratio
FCS	FirstCarbon Solutions
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GE	Geotechnical Engineer
GHG	greenhouse gas
gpcd	gallons per capita per day
gpm	gallons per minute
GRH	Guaranteed Ride Home
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GVWR	gross vehicle weight rating
GWh	gigawatt-hours
GWh/y	gigawatt-hours per year
GWP	global warming potential
HAP	hazardous air pollutant
HCM	Highway Capacity Manual

Acronyms and Abbreviations

HFC	hydrofluorocarbon
HRA	Health Risk Assessment
HRI	California Historical Resources Inventory
HSWA	Hazardous and Solid Waste Act
HVAC	heating, ventilation, and air conditioning
IPCC	United Nations Intergovernmental Panel on Climate Change
ISO	Independent System Operator
ITE	Institute of Transportation Engineers
LAFCo	Local Agency Formation Commission LCFS      Low Carbon Fuel Standard
L <sub>dn</sub>	day/night average sound level
LEED	Leadership in Energy and Environmental Design
L <sub>eq</sub>	equivalent sound level
LESA	Land Evaluation and Site Assessment
LEV	Low Emission Vehicle
L <sub>max</sub>	maximum noise level
LOMR	Letter of Map Revision
LOS	Level of Service
LSE	load-serving entities
LTA	Local Transportation Authority
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MLD	Most Likely Descendant
MM	Mitigation Measure
MMT	million metric tons
mph	miles per hour
MPO	Metropolitan Planning Organization
MT	metric ton
MWELO	Model Water Efficient Landscape Ordinance
MWh	megawatt-hour
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCHRP	National Cooperative Highway Research Program
NDC	nationally determined contribution
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NF <sub>3</sub>	nitrogen trifluoride
NHPA	National Historic Preservation Act

NO <sub>2</sub>	nitrogen dioxide
NOC	Notice of Completion
NOP	Notice of Preparation
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NPTS	North Patterson Trunk Sewer
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSTL	North Sperry Trunk Line
NWIC	Northwest Information Center
O <sub>3</sub>	ozone
OAL	Office of Administrative Law
OEHHA	California Office of Environmental Health Hazard Assessment
OHP	California Office of Historic Preservation
ONAC	Federal Office of Noise Abatement and Control
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
PE	Professional Engineer
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric Company
PID	Patterson Irrigation District
PM <sub>10</sub>	particulate matter, including dust, 10 micrometers or less in diameter
PM <sub>2.5</sub>	particulate matter, including dust, 2.5 micrometers or less in diameter
PM <sub>x</sub>	particulate matter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PUSD	Patterson Unified School District
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
rms	root mean square
ROG	reactive organic gases
RPS	renewables portfolio standard RTP      Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board

Acronyms and Abbreviations

SCADA	Supervisory Control and Data Acquisition
SCS	Sustainable Communities Strategy
SF <sub>6</sub>	sulfur hexafluoride
SGMA	Sustainability Groundwater Management Act
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutant
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO <sub>2</sub>	sulfur dioxide
SOV	single occupant vehicle
SR	State Route
StanCOG	Stanislaus Council of Governments
StaRT	Stanislaus Regional Transit
State Water Board	California State Water Resources Control Board
STIP	State Transportation Improvement Plan
SWPPP	Storm Water Pollution Prevention Plan
TAC	toxic air contaminant
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TDS	total dissolved solids
Tg	teragram
therms/y	therms per year
TIMP	Transportation Infrastructure Master Plan
TMDL	Total Maximum Daily Load TRU          transport refrigeration unit
UBC	Uniform Building Code
UCMP	University of California Museum of Paleontology
UNFCCC	United Nations Framework Convention on Climate Change
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
V/C	volume to capacity ratio
VERA	Voluntary Emission Reduction Agreement
VMT	vehicle miles traveled
VOC	volatile organic compound
vpd	vehicles per day
WDR	Waste Discharge Requirement
WMP	Water Management Plan

WSA	Water Supply Assessment
WSID	West Stanislaus Irrigation District
WWTF	Wastewater Treatment Facility
ZEV	Zero Emission Vehicle

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## EXECUTIVE SUMMARY

### Purpose

This Draft Environmental Impact Report (Draft EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the Baldwin Master Plan / Zacharias Master Plan Project (State Clearinghouse No. 2018122052). This document is prepared in conformance with CEQA (California Public Resources Code, Section 21000, et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000, et seq.).

The purpose of this Draft EIR is to inform decision makers, representatives of affected and responsible agencies, the public, and other interested parties of the potential environmental effects that may result from implementation of the proposed project. This Draft EIR describes potential impacts relating to a wide variety of environmental issues and methods by which these impacts can be mitigated or avoided.

### Project Summary

#### Project Location

The Zacharias and Baldwin Master Plans encompass 1,227.1 acres outside the Patterson city limits in unincorporated Stanislaus County, California.

The 1,158.4-acre Zacharias Master Plan is bounded by Rogers Road (west), Zacharias Road (north), the California Northern Railroad tracks and Ward Avenue (east), and existing residential and business park uses (south).

The 68.7-acre Baldwin Master is located at the southern terminus of Baldwin Road and is bounded by the Delta-Mendota Canal (west), the City of Patterson Corporation Yard (north), and agricultural uses (east and south).

#### Project Description

The proposed project consists of two separate Master Plans (Baldwin and Zacharias), that together involve the annexation of 1,297 acres into the City of Patterson and contemplate the development of residential, mixed use, commercial, industrial, school, parks, and open space uses. The combined buildout potential of the Master Plans is 5,086 dwelling units, 7,765,000 square feet of non-residential uses, two schools, a dual use stormwater basin / recreational facility, and 76 acres of parks / open space.

Section 2, Project Description provides a complete description of the project.

#### Project Objectives

The objectives of the proposed project are to:

1. Promote positive contribution to the local and regional economy through new capital investment, creation of new employment and housing opportunities, and expansion of the tax base.
2. Develop a mix of new residential uses in proximity to a regional job center.
3. Continue to attract new businesses to the City of Patterson by providing adequate, available land and infrastructure.
4. Facilitate buildout of the City of Patterson General Plan.
5. Maintain a high quality of life in the City of Patterson through the provision of schools, parks, open spaces, and trails in residential areas.
6. Facilitate the development of the South County Corridor by reserving land for the future alignment of this transportation corridor and limiting new connections from the Master Plan area.
7. Promote land use compatibility with the Ranchette area by appropriately citing roadway connections and affording property owners the option of maintaining their existing land use activities or developing low density residential uses.
8. Ensure that the Patterson city limits are expanded in an orderly and logical manner.
9. Avoid the premature conversion of viable agricultural land through the use of buffers and by affording property owners the ability to continue to farm their land until the time is right for development.
10. Work with PID and WSID to protect groundwater resources and their irrigation canals as the Master Plan area transitions from agricultural/rural residential to urban use.

## Significant Unavoidable Adverse Impacts

The proposed project would result in the following significant unavoidable impacts:

- **Important Farmland:** Buildout of the proposed Master Plans would convert 1,246 acres of Important Farmland to non-agricultural use. Mitigation is proposed consisting of farmland preservation elsewhere in Stanislaus County; however, preservation would still result in the net loss of farmland. Therefore, the impact is significant and unavoidable.
- **Consistency With Air Quality Plan:** Buildout of the proposed Master Plans would result in ozone precursor and particulate matter emissions that would exceed adopted thresholds and, therefore, would be inconsistent with San Joaquin Valley Air Pollution Control District's air quality plan. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Cumulative Criteria Pollutant Emissions Impacts:** Buildout of the proposed Master Plans would result in ozone precursor and particulate matter emissions that would exceed adopted thresholds and, therefore, have a cumulatively considerable contribution to regional air

pollution. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.

- **Greenhouse Gas Emissions Generation:** Buildout of the proposed Master Plans would result in greenhouse gas emissions that would exceed adopted thresholds. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Consistency With Greenhouse Gas Emissions Reduction Plan:** Buildout of the proposed Master Plans would result in greenhouse gas emissions that would exceed adopted thresholds and, therefore, would be inconsistent with State greenhouse gas reduction strategies. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Existing Plus Approved Plus Project Traffic Conditions:** The proposed Master Plans would contribute new vehicle trips to intersections, roadway segments, and freeway segments that would operate at unacceptable levels under Existing Plus Approved Plus Project Traffic Conditions. Mitigation is proposed consisting of improvements to affected facilities; however, in certain cases, it would not restore operations to acceptable levels or is considered uncertain because the facilities are outside the jurisdictional control or the City of Patterson. Therefore, the impact is significant and unavoidable.
- **2040 Cumulative Plus Project Traffic Conditions:** The proposed Master Plans would contribute new vehicle trips to intersections, roadway segments, and freeway segments that would operate at unacceptable levels under 2040 Cumulative Plus Project Traffic Conditions. Mitigation is proposed consisting of improvements to affected facilities; however, in certain cases, it would not restore operations to acceptable levels or is considered uncertain because the facilities are outside the jurisdictional control or the City of Patterson. Therefore, the impact is significant and unavoidable.

## Summary of Project Alternatives

Below is a summary of the alternatives to the proposed project considered in Section 5, Alternatives to the proposed project.

### No Project Alternative

Neither the Baldwin Master Plan nor the Zacharias Master Plan would be implemented and the planning areas would continue their existing agricultural land use activities within unincorporated Stanislaus County.

### Zacharias Master Plan Only Alternative

The Zacharias Master Plan would be implemented as contemplated and the Baldwin Master Plan would not be pursued. The buildout potential of this alternative is 4,781 dwelling units, 7,765,000 square feet of nonresidential uses, and two schools. The Zacharias Master Plan Only Alternative is the Environmentally Superior Alternative.

## Reduced Density Alternative

A 25 percent reduction would be applied to the buildout potential of both the Baldwin Master Plan and the Zacharias Master Plan; however, the boundaries of the plans would remain the same. The buildout potential of this alternative is 3,815 dwelling units, 5,823,000 square feet of non-residential uses., and two school sites.

## Ivy Avenue Connection Alternative

Both the Baldwin Master Plan and the Zacharias Master Plan would be pursued as contemplated, but Ivy Avenue would provide a through connection between Ward Avenue and the Patterson Irrigation District (PID) Lateral M Canal.

## Areas of Controversy

Pursuant to CEQA Guidelines Section 15123(b), a summary section must address areas of controversy known to the lead agency, including issues raised by agencies and the public, and it must also address issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

A Notice of Preparation (NOP) for the proposed project was issued on December 21, 2018. The NOP describing the original concept for the project and issues to be addressed in the EIR was distributed to the State Clearinghouse, responsible agencies, and other interested parties for a 30-day public review period extending from December 21, 2018 through January 22, 2019. The NOP identified the potential for significant impacts on the environment related to the following topical areas:

- Aesthetics, Light, and Glare
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems

## Disagreement Among Experts

This Draft EIR contains substantial evidence to support all the conclusions presented herein. It is possible that there will be disagreement among various parties regarding these conclusions, although the City of Patterson is not aware of any disputed conclusions at the time of this writing. Both the CEQA Guidelines and case law clearly provide the standards for treating disagreement among experts. Where evidence and opinions conflict on an issue concerning the environment, and the lead agency knows of these controversies in advance, the EIR must acknowledge the controversies, summarize the conflicting opinions of the experts, and include sufficient information to allow the public and decision makers to make an informed judgment about the environmental consequences of the proposed project.

## Potentially Controversial Issues

Below is a list of potentially controversial issues that may be raised during the public review and hearing process of this Draft EIR:

- Agricultural land use compatibility
- Delta-Mendota Canal subsidence
- Flooding
- Groundwater sustainability
- Public safety
- School enrollment
- Traffic
- Wastewater treatment

It is also possible that evidence will be presented during the 45-day, statutory Draft EIR public review period that may create disagreement. Decision makers would consider this evidence during the public hearing process.

In rendering a decision on a project where there is disagreement among experts, the decision makers are not obligated to select the most environmentally preferable viewpoint. Decision makers are vested with the ability to choose whatever viewpoint is preferable and need not resolve a dispute among experts. In their proceedings, decision makers must consider comments received concerning the adequacy of the Draft EIR and address any objections raised in these comments. However, decision makers are not obligated to follow any directives, recommendations, or suggestions presented in comments on the Draft EIR, and can certify the Final EIR without needing to resolve disagreements among experts.

## Public Review of the Draft EIR

Upon completion of the Draft EIR, the City of Patterson filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Draft EIR, including the technical appendices, is available for review at Patterson City Hall and the Patterson Library. The address for each location is provided below:

Patterson City Hall  
1 Plaza Circle  
Patterson, CA 95363  
Hours: 8:00 a.m. to 5:00 p.m. Monday-Friday  
Closed Saturday-Sunday

Patterson Library  
46 N. Salado Avenue  
Patterson, CA 95363  
Hours: 12:00 p.m. to 6:00 p.m. Monday-Thursday  
11:00 a.m. to 5:00 p.m. Friday  
Closed Saturday-Sunday

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Mr. Joel Andrews, City Planner  
City of Patterson  
Community Development Department  
1 Plaza Circle  
Patterson, CA 95363  
Phone: 209.895.8020  
Email: jandrews@ci.patterson.ca.us

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the City of Patterson on the project, at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision makers for the project.

### Executive Summary Matrix

Table ES-1 below summarizes the impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the proposed project. The table is intended to provide an overview; narrative discussions for the issue areas are included in the corresponding section of this EIR. Table ES-1 is included in the EIR as required by CEQA Guidelines Section 15123(b)(1).

**Table ES-1: Executive Summary Matrix**

Impacts	Mitigation Measures	Level of Significance After Mitigation
<b>Section 3.1—Aesthetics, Light, and Glare</b>		
<b>Impact AES-1:</b> Buildout of the Master Plans would not have a substantial adverse effect on a scenic vista.	No mitigation is necessary.	Less than significant impact.
<b>Impact AES-2:</b> Buildout of the Master Plans would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway.	No mitigation is necessary.	Less than significant impact.
<b>Impact AES-3:</b> Buildout of the Master Plans would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.	No mitigation is necessary.	Less than significant impact.
<b>Impact AES-4:</b> Buildout of the Master Plans would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	No mitigation is necessary.	Less than significant impact.
<b>Section 3.2—Agricultural Resources</b>		
<b>Impact AG-1:</b> The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	<b>MM AG-1:</b> Prior to issuance of the grading permit, the project applicant shall preserve Important Farmland acreage, as mapped by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), within Stanislaus County (but outside of the Patterson Planning Area) at a ratio of no less than 1:1 for each acre of Important Farmland converted to non-agricultural use by the proposed project. Preserved acreage shall be of equal or higher quality to farmland converted to non-agricultural use by the proposed project. The preservation shall be accomplished through one of the following approaches: <ul style="list-style-type: none"> <li>The applicant shall enter into a binding agreement with one or more private property owners or third-party organizations acceptable to the City of Patterson (e.g., Stanislaus County farm Bureau or the American Farmland Trust) to permanently preserve farmland. The agreement shall identify an irrevocable instrument that will be recorded against the preserved acreage property. This option shall be pursued if the City of</li> </ul>	Significant unavoidable impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>Patterson does not have a farmland preservation program in place at the time permits are sought.</p> <ul style="list-style-type: none"> <li>If the City of Patterson establishes a farmland preservation program before the project applies for construction permits for any phase of development, the City may require the applicant to pay fees to the City of Patterson equivalent to cost of preserving Important Farmland. The City shall use the fees to fund an irrevocable instrument (e.g., deed restriction or reservation easements) to permanently preserve farmland.</li> </ul>	
<p><b>Impact AG-2:</b> The project would potentially conflict with existing zoning for agricultural use, or a Williamson Act contract.</p>	<p>None.</p>	<p>Less than significant impact.</p>
<p><b>Impact AG-3:</b> The project would potentially conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).</p>	<p><b>MM AG-3:</b> Prior to the issuance of the grading permit, the project applicant shall prepare and submit plans to the City of Patterson demonstrating that the 150-foot minimum setbacks have been established between the proposed project and all agricultural lands in unincorporated Stanislaus County zoned General Agriculture (A-2) and outside the Patterson Sphere of Influence. Pursuant to the County’s policy, permitted uses within the setback may include public roadways, utilities, drainage facilities, rivers and adjacent riparian areas, landscaping, parking lots, and similar low-people-intensive uses. Permitted uses may also include non-agricultural uses adjoining or surrounding a project site (including but not limited to legal, non-conforming uses and home sites) that are of a permanent nature and are not likely to be returned to agriculture. Landscaping within a buffer setback area shall be designed to exclude turf areas that could induce activities and add to overall maintenance costs and water usage.</p>	<p>Less than significant impact.</p>
<p><b>Section 3.3—Air Quality</b></p>		
<p><b>Impact AIR-1:</b> Buildout of the Master Plans may conflict with or obstruct implementation of the applicable air quality plan</p>	<p>See mitigation measures for Impact AIR-2.</p>	<p>Significant impact.</p>
<p><b>Impact AIR-2:</b> Buildout of the Master Plans may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in</p>	<p><b>MM AIR-3a:</b> Prior to the issuance of grading permits, the applicant shall provide the City of Patterson with documentation demonstrating a good faith effort was made to obtain off-road equipment meeting Tier 4 standards</p>	<p>Significant and Unavoidable Impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
<p>nonattainment under an applicable federal or state ambient air quality standard.</p>	<p><b>MM AIR-3b:</b> All hearths and fireplaces shall utilize natural gas. No woodburning hearths are allowed in the Master Plan area.</p>	
<p><b>Impact AIR-3:</b> Buildout of the Master Plans may expose sensitive receptors to substantial pollutant concentrations</p>	<p><b>MM AIR-3c:</b> Prior to approval of site plans for warehouse/distribution center projects located within 1,000 feet of a sensitive receptor location (including land designated for residential, school, etc.) and accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week, the applicant shall provide a health risk prioritization screening analysis to assess the potential cancer and non-cancer risks from project DPM emissions. If the project exceeds screening criteria, the applicant shall provide a Health Risk Assessment prepared by a qualified air quality consultant and the City shall submit the HRA for review by the Valley Air District. In addition, the following measures should be considered for the projects:</p> <ul style="list-style-type: none"> <li>• Locate loading docks and truck access routes as far from receptor locations as possible.</li> <li>• Place signs at loading docks requiring trucks to limit idling to less than 5 minutes to comply with the ARB In-Use Diesel Truck Regulation anti-idling provisions.</li> <li>• Provide electric plug in capability to a suitable portion of loading docks for warehouses that use refrigerated trucks to limit TRU operation.</li> <li>• Encourage the use of electric yard hostlers to move trailers on-site.</li> </ul> <p><b>MM AIR-3d:</b> Prior to approval of a site plan or conditional use permit for a high-volume gasoline station (3 million gallons per year) within 300 feet of a sensitive receptor location the applicant shall provide a health risk prioritization screening analysis to assess the potential health risk from benzene emissions impacts from the fueling operation. Projects that exceed the risk screening criteria may reduce the fuel throughput or prepare a full HRA to more accurately determine project impacts.</p>	<p>Less than significant impact.</p>
<p><b>Impact AIR-4:</b> Buildout of the Master Plans would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?</p>	<p>None required.</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
<b>Section 3.4—Biological Resources</b>		
<p><b>Impact BIO-1:</b> Buildout of the Master Plans may have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service.</p>	<p><b>MM BIO-1a:</b> No more than 14 days prior to the initiation of ground-disturbing activities within the nesting season (February 1 to August 31), a qualified Biologist shall perform a pre-construction survey for burrowing owl, loggerhead shrike, or nesting migratory birds active within the Master Plan areas and within a 200-foot buffer of the project site to determine the presence or absence of these species. If these species are determined to be present, the applicant shall follow the guidelines outlined by the California Department of Fish and Wildlife (CDFW):</p> <ul style="list-style-type: none"> <li>● If burrowing owls are found on-site during the nesting season (February 1 to August 31), they shall be avoided by a 250-foot work-free buffer until it has been determined by a qualified Biologist that the young have fledged and are independent of their parents. The 250-foot week-free buffer will be clearly defined (e.g., with orange construction fencing), and a biological monitor will visit the site randomly throughout the breeding season to ensure the area remains work-free and the owls are not negatively affected by construction activities.</li> <li>● If loggerhead shrike or any other migratory birds are found nesting on-site, a 50-foot work-free buffer area will be established and monitored by a qualified Biologist until young have fledged and are independent of their parents. Again, nests and work-free buffers would be monitored.</li> <li>● If burrowing owls occur on the project area during the wintering season (September 1 to January 31), and construction is slated to begin during this time and active burrows cannot be avoided, an eviction of owls can be conducted to ensure owls move off the site prior to commencement of construction. The eviction process includes the installation of one-way doors that remain in all burrows of suitable size for at least 3 days, monitored by a qualified Biologist, and then hand-excavating burrows to ensure no owl remains in the burrow. Once the site is clear of owls, the burrows can be backfilled, after which ground-disturbing construction activity can commence.</li> <li>● In the unlikely event burrowing owls are found on-site, mitigation lands must be purchased to offset the loss of their habitat. The standard mitigation lands required to loss of habitat is 6.5 acres for every pair of owls found on-site.</li> </ul>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p><b>MM BIO-1b:</b> No more than 14 days prior to ground-disturbing activities during the breeding season (February 1 to August 31), a qualified Biologist shall perform pre-construction surveys for the Swainson’s hawk in accordance with the Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley. In accordance with the guidelines, surveys shall occur within a 0.5-mile radius of the site, and shall involve a minimum of two survey periods. In the event that one or more Swainson’s hawks are observed to be nesting, a work-free buffer area shall be established and monitored by a qualified Biologist. The Biologist shall have the discretion to determine the appropriate buffer, which may involve consultation with the CDFW, as appropriate. The Biologist shall determine when the nest has been vacated, at which point, the work-free buffer area can be removed.</p> <p><b>MM BIO-1c:</b> The project applicant shall adhere to the following requirements to avoid or minimize adverse impacts on the San Joaquin kit fox:</p> <ul style="list-style-type: none"> <li>● No more than 14 days prior to the first ground-disturbing activity, a qualified Biologist shall thoroughly walk the Master Plan areas, as well as a 200-foot buffer around the perimeter of the Master Plan areas, to locate potential San Joaquin kit fox dens. If no dens are located, no further surveys efforts are required. If dens are located during this survey effort, the status of the dens shall be assessed and the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) shall be consulted.</li> <li>● All vehicles operating within the construction area shall observe a maximum 20-mph speed limit.</li> <li>● All ground-disturbing construction activities shall occur during daylight hours.</li> <li>● All excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each work day or shall have escape ramps constructed of earth fill or wooden planks installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If an animal is found within these structures, the animal shall be allowed to leave on its own without harm or harassment.</li> <li>● All construction piles, culverts, or similar structures with a diameter of 4</li> </ul>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>inches or greater that are stored at the construction site shall be thoroughly inspected for animals prior to burial, capping, or moving. If a kit fox is found within any of these structures, the structure shall remain untouched until the kit fox has vacated the structure; if necessary, the USFWS and CDFW shall be consulted.</p> <ul style="list-style-type: none"> <li>● All food-related trash shall be disposed of in closed containers and removed from the construction site at a minimum of once per week.</li> <li>● Prior to the first ground-disturbing activity, a qualified Biologist shall conduct an employee education program for construction personnel. The education program shall include a physical description of the kit fox, methods of impact avoidance, and points of contact should an impact occur or potentially occur. A fact sheet covering all of this information shall be provided to each employee.</li> <li>● The applicant shall establish a point of contact for construction personnel in the event that a kit fox is accidentally injured or killed.</li> <li>● Prior to ground-disturbing activities, the City shall retain a qualified Biologist to conduct periodic inspections of the Master Plan areas during construction to ensure compliance with the above measures.</li> <li>● The CDFW shall be notified immediately and the Sacramento Fish and Wildlife office shall be notified within 3 days if a kit fox is injured or killed</li> </ul>	
<p><b>Impact BIO-2:</b> Buildout of the Master Plans would not have adverse impacts on sensitive natural communities or riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife (CDFW) or the United States Fish and Wildlife Service (USFWS).</p>	<p>No mitigation measures are necessary.</p>	<p>Less than significant impact.</p>
<p><b>Impact BIO-3:</b> Buildout of the Master Plans would not have a substantial adverse effect on state or federally protected wetlands or jurisdictional features as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.</p>	<p>No mitigation measures are necessary.</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact BIO-4:</b> Buildout of the Master Plans would not 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 wildlife nursery sites.</p>	<p>No specific mitigation measures are necessary.</p>	<p>Less than significant impact.</p>
<p><b>Impact BIO-5:</b> Buildout of the Master Plans would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.</p>	<p>Implement MM BIO-1a and MM BIO-1b.</p>	<p>Less than significant impact.</p>
<p><b>Impact BIO-6:</b> Buildout of the Master Plans would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.</p>	<p>No mitigation is necessary.</p>	<p>No impact.</p>
<p><b>Section 3.5—Cultural Resources and Tribal Cultural Resources</b></p>		
<p><b>Impact CUL-1:</b> Buildout of the Master Plan may result in a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5.</p>	<p><b>MM CUL-1:</b> Prior to the commencement of any construction or demolition activities that would affect any building or structure over 45 years in age, an architectural historian who meets the qualification standards of the Secretary of the Interior shall be retained to evaluate the property and determine if it is eligible for listing on the California Register of Historical Resources. The Architectural Historian will engage in expanded archival research and oral interviews to better document the age, periods of use, owners and residents who were associated with each potential resource. The Architectural Historian shall inspect the structure(s) to determine if any qualify as significant under CEQA Guidelines on the basis of their association with significant events or persons, state of preservation, unique design qualities, or as examples of historically important structures at the national, State and local level. If the structure is determined to not have historical significance, the Architectural Historian shall document his/her findings in a report and no further action is required. If the structure is determined to have historical significance, the Architectural Historian shall document his/her findings in the form of a Historic Resource Assessment report that shall be prepared for each structure along with all appropriate Department</p>	<p>Less than significant Impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>of Parks and Recreation (DPR) building and structure recordation forms. The Historic Resource Assessment shall be submitted to the City of Patterson, State Historic Preservation Office, and the Central California Information Center as required. In the event any of the structures are found to be significant, the Architectural Historian will be retained to design a Historic Property Treatment Plan that adheres to the Secretary of the Interior’s guidelines for the treatment of historic properties, and provides mitigation to reduce potential impacts to historic resources to a less than significant level. Such mitigation may include, but is not limited to:</p> <ul style="list-style-type: none"> <li>● Preservation in place of significant structures or rehabilitation for re-use appropriate for the proposed development.</li> <li>● Relocation of significant structures to locations outside of the disturbance area or renovation for re-use.</li> <li>● Complete photo documentation and architectural recording for archival purposes, salvage of elements of the structures for re-use elsewhere or for display at local historical venues prior to demolition.</li> </ul>	
<p><b>Impact CUL-2:</b> Buildout of the Master Plan may result in a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.</p>	<p><b>MM CUL-2:</b> In the event a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find shall cease and workers should avoid altering the materials until a qualified Archaeologist who meets the Secretary of Interior’s Professional Qualification Standards for archaeology has evaluated the situation. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction activities shall be recorded on appropriate Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of CEQA criteria by a qualified Archaeologist. Potentially significant cultural resources consist of but are not limited to stone, bone, glass, ceramics, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites. If the resource is determined to be significant under CEQA, the qualified Archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant in accordance with Section 15064.5 of the CEQA Guidelines. The</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>Archaeologist shall also perform appropriate technical analyses, prepare a comprehensive report complete with methods, results, and recommendations, and provide for the permanent curation or repatriation of the recovered resources in cooperation with the designated Most Likely Descendant (MLD) as needed. The report shall be submitted to the City of Patterson, the Central California Information Center (CCIC), and the California Office of Historic Preservation (OHP), as required.</p>	
<p><b>Impact CUL-3:</b> Buildout of the Master Plan may result in disturbance to human remains, including those interred outside of formal cemeteries.</p>	<p><b>MM CUL-3:</b> In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during the course of project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken:</p> <ol style="list-style-type: none"> <li>1. There shall be no further excavation or disturbance within 100 feet of the remains until the Stanislaus County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.</li> <li>2. Where the following conditions occur, the landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance: <ul style="list-style-type: none"> <li>• The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission.</li> <li>• The descendant identified fails to make a recommendation.</li> </ul> </li> </ol>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<ul style="list-style-type: none"> <li>The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.</li> </ul> <p>Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:</p> <ul style="list-style-type: none"> <li>When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code Section 5097.98. The applicant may develop a plan for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American Burials with the appropriate Native Americans as identified by the Native American Heritage Commission.</li> </ul>	
<p><b>Impact CUL-4:</b> Buildout of the Master Plans would not result in a substantial adverse change in the significance of a Tribal Cultural Resource</p>	<p>No mitigation is required.</p>	<p>Less than significant impact.</p>
<p><b>Impact CUL-5:</b> Buildout of the Master Plans would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.</p>	<p>Implementation of MM CUL-1, MM CUL-2, and MM CUL-3.</p>	<p>Less than significant Impact.</p>
<p><b>Section 3.6—Geology, Soils, and Seismicity</b></p>		
<p><b>Impact GEO-1:</b> The project may expose persons within the Master Plan areas to seismic hazards including fault rupture, strong ground shaking, liquefaction, or landsliding.</p>	<p><b>MM GEO-1:</b> Prior to the issuance of building permits, the project applicant shall submit a design-level geotechnical study and building plans to the City of Patterson for review and approval. The design-level geotechnical study shall be prepared by a qualified Engineer and shall identify grading and</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>building practices necessary to ensure stable building conditions, including the abatement of expansive soil conditions on the project site. The project applicant shall implement the recommendations of the approved geotechnical study into project plans. The project’s building plans shall demonstrate that they incorporate all applicable recommendations of the geotechnical study and comply with all applicable requirements of the latest adopted version of the California Building Standards Code (CBC). A licensed Professional Engineer (PE) shall prepare the plans, including those that pertain to soil engineering, structural foundations, pipeline excavation, and installation. The approved plans shall be incorporated into the proposed project. All on-site soil engineering activities shall be conducted under the supervision of a licensed Geotechnical Engineer (GE) or Certified Engineering Geologist (CEG).</p>	
<p><b>Impact GEO-2:</b> The project may result in substantial soil erosion or the loss of topsoil.</p>	<p>Implement Mitigation Measure HYD-1.</p>	<p>Less than significant impact.</p>
<p><b>Impact GEO-3:</b> The project may be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.</p>	<p>No mitigation is necessary.</p>	<p>Less than significant impact.</p>
<p><b>Impact GEO-4:</b> The project may be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.</p>	<p>Implement MM GEO-1.</p>	<p>Less than significant impact.</p>
<p><b>Impact GEO-5:</b> The project may impact undiscovered paleontological resources.</p>	<p><b>MM GEO-5:</b> In the event a fossil or fossil formations are discovered during any subsurface construction activities associated with buildout of the Master Plans, all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the City of Patterson, who shall coordinate with the paleontologist concerning any necessary investigation of the find. If the find is determined to be significant under CEQA, the City, based on the recommended mitigation measures of the qualified paleontologist, shall require the</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	applicant to implement those measures, which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code Section 21083.2.	
<b>Section 3.7—Greenhouse Gas Emissions and Energy</b>		
<b>Impact GHG-1:</b> Buildout of the Master Plan would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Implement Mitigation Measure TRANS-2.	Significant unavoidable impact.
<b>Impact GHG-2:</b> Buildout of the Master Plan may conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	Implement Mitigation Measure TRANS-2.	Significant and unavoidable.
<b>Impact GHG-3:</b> Buildout of the Master Plans would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation	No mitigation is required.	Less than significant impact.
<b>Impact GHG-4:</b> Buildout of the Master Plan would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	No mitigation measures are required.	Less than significant impact.
<b>Section 3.8—Hazards and Hazardous Materials</b>		
<b>Impact HAZ-1:</b> Buildout of the Master Plans would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	None required.	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
<p><b>Impact HAZ-2:</b> Buildout of the Master Plans would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.</p>	<p>None required.</p>	<p>Less than significant impact.</p>
<p><b>Impact HAZ-3:</b> Buildout of the Master Plans would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.</p>	<p><b>MM HAZ-3a:</b> Prior to issuance of grading permits for any portion of the project site where pesticides or other agricultural chemicals have been applied within the past 5 years, the project applicant shall retain a qualified consultant to perform soil testing for residual concentrations of agricultural chemicals. Soils shall be laboratory tested in accordance with California Department of Toxic Substances Control guidelines. If the testing finds concentrations in excess of acceptable limits, the project applicant shall retain a qualified contractor to conduct remediation activities, which may include treatment or removal. The soil remediation activities shall be completed prior to grading.</p> <p><b>MM HAZ-3b:</b> Prior to issuance of demolition permits for any structures, the project applicant shall retain a certified hazardous waste contractor to properly remove and dispose of all materials containing asbestos, lead, mercury, and polychlorinated biphenyls. Upon completion, the applicant shall submit documentation to the City of Patterson verifying such activities have been completed.</p>	<p>Less than significant impact with mitigation incorporated.</p>
<p><b>Impact HAZ-4:</b> Buildout of the Master Plans would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.</p>	<p>None required.</p>	<p>Less than significant impact.</p>
<p><b>Section 3.9—Hydrology and Water Quality</b></p>		
<p><b>Impact HYD-1:</b> Buildout of the Master Plan may violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.</p>	<p><b>MM HYD-1a:</b> Prior to issuance of the first grading permit for each development phase of either the Baldwin Master Plan or Zacharias Master Plan, the applicant shall prepare and submit a Stormwater Pollution Prevention Plan to the City of Patterson for review and approval that demonstrate the use of stormwater treatment Best Management Practices (BMP) identified in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction or the Caltrans Stormwater Quality Handbook Construction Site BMPs Manual.</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p><b>MM HYD-1b:</b> Prior to issuance of the first building permit for each development phase of either the Baldwin Master Plan or Zacharias Master Plan, the applicant shall prepare and submit drainage plans to the City of Patterson for review and approval that demonstrate the use of Low Impact Development practices, bioswales, bioretention and other forms of stormwater treatment Best Management Practices pursuant to the NPDES Phase II stormwater permit (or most recently approved permit)</p>	
<p><b>Impact HYD-2:</b> Buildout of Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.</p>	<p>No mitigation is required.</p>	<p>Less than significant impact.</p>
<p><b>Impact HYD-3:</b> Buildout of the Master Plans may alter the existing drainage pattern of the site that may create erosion or downstream flooding problems.</p>	<p><b>MM HYD-3a:</b> Prior to operation of the stormwater lift station that would serve the Zacharias Master Plan, the applicant shall prepare and submit an emergency action plan for lift station failure to the City of Patterson for review and approval. The plan shall outline pump and power redundancy plans, potential flow routing, and other potential actions to be taken if pump failure occurs. The approved plan shall be implemented.</p> <p><b>MM HYD-3b:</b> Prior to issuance of a grading permit for the Baldwin Master Plan, the project applicant shall submit stormwater calculations to the City for approval that confirm that increases in downstream flow rates for storms greater than the 10-year event up to the 100-year event would not cause downstream flooding issues, or, submit plans for adequate additional detention, retention and/or metering to mitigate stormwater runoff to comply with the City Storm Drain Master Plan up to the 100-year peak flow event.</p>	<p>Less than significant impact.</p>
<p><b>Impact HYD-4:</b> Buildout of the Master Plans would not result in release of pollutants due.</p>	<p>No mitigation is required.</p>	<p>Less than significant impact.</p>
<p><b>Impact HYD-5:</b> Buildout of the Master Plans would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.</p>	<p>No mitigation is required.</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
<b>Section 3.10—Land Use</b>		
<b>Impact LU-1:</b> Buildout of the proposed Master Plans would not physically divide an established community.	No mitigation is necessary.	Less than significant impact.
<b>Impact LU-2:</b> Buildout of the proposed Master Plans would not conflict with the City of Patterson General Plan.	No mitigation is necessary.	Less than significant impact.
<b>Impact LU-3:</b> The Master Plans would not conflict with the Patterson Municipal Code.	No mitigation is necessary.	Less than significant impact.
<b>Impact LU-4:</b> The Master Plans would not conflict with LAFCO policies.	No mitigation is necessary.	Less than significant impact.
<b>Section 3.11—Noise</b>		
<b>Impact NOI-1:</b> Buildout of the Master Plans may cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	<b>MM NOI-1:</b> Prior to issuance of residential building permits for the Zacharias Master Plan, the applicant shall submit building plans to the City of Patterson for review and approval that demonstrate that each dwelling unit includes a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods for all residential units within 100 feet of Zacharias Road, Baldwin Road, or State Route 33.	Less than significant impact.
<b>Impact NOI-2:</b> Buildout of the Master Plans may result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies	<b>MM NOI-2a:</b> To reduce potential construction noise impacts, the following multi-part mitigation measure shall be implemented for all developments included in the proposed project: <ul style="list-style-type: none"> <li>• The construction contractor shall ensure that all internal combustion engine-driven equipment is equipped with mufflers that are in good condition and appropriate for the equipment.</li> <li>• The construction contractor shall locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area. In addition, the project contractor shall place such stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.</li> <li>• The construction contractor shall prohibit unnecessary idling of internal combustion engines.</li> <li>• The construction contractor shall, to the maximum extent practical, locate</li> </ul>	Less than significant impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>on-site equipment staging areas so as to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.</p> <ul style="list-style-type: none"> <li>The construction contractor shall limit noise producing construction activity located within five hundred feet of a residential zone, including deliveries and equipment idling activities, to the daytime hours of 7:00 a.m. to 10:00 p.m., unless beforehand a special permit authorizing exception to these hours has been obtained from the officer or body of the city having the function to issue permits of this kind.</li> </ul> <p><b>MM NOI-2b:</b> Proposed parking areas within the Zacharias Master Plan area shall be located a minimum of 100 feet from existing residential land uses or shall provide shielding (e.g., sound barrier) to block the line of sight to nearby noise sensitive land uses to meet the City’s nighttime noise performance standards of 45 dBA <math>L_{eq}</math> or 64 dBA <math>L_{max}</math>. If shielding is needed, shielding shall have a minimum height sufficient to completely block line-of-sight between the on-site noise source and the nearest residential dwelling to meet the City’s noise standards.</p> <p><b>MM NOI-2c:</b> Proposed mechanical ventilation systems within the Zacharias Master Plan area shall be located a minimum of 55 feet from existing sensitive receptors or should provide shielding to block the line of sight to nearby noise sensitive land uses to meet the City’s noise performance standards of 45 dBA <math>L_{eq}</math> or 64 dBA <math>L_{max}</math>. Shielding shall have a minimum height sufficient to completely block line-of-sight between the on-site noise source and the nearest residential dwelling to meet the City’s noise standards. Based on the size and placement of the HVAC units (i.e., ground level or roof top), barrier heights may range between three to six feet.</p>	
<p><b>Impact NOI-3:</b> The project would not result in generation of excessive groundborne vibration or groundborne noise levels.</p>	<p>None.</p>	<p>Less than significant impact.</p>
<p><b>Section 3.12—Population and Housing</b></p>		
<p><b>Impact POP-1:</b> Buildout of the Master Plans would not induce substantial unplanned population growth in an</p>	<p>No mitigation is necessary.</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).		
<b>Impact POP-2:</b> The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	No mitigation is necessary.	Less than significant impact.
<b>Section 3.13—Public Services and Recreation</b>		
<b>Impact PSR-1:</b> Buildout of the Master Plans may result in a need for new or expanded fire protection facilities.	<b>MM PSR-1:</b> Prior to issuance of building permits, the applicant shall pay all public safety development fees in accordance with the City of Patterson’s latest adopted fee schedule	Less than significant impact.
<b>Impact PSR-2:</b> Buildout of the Master Plans may result in a need for new or expanded police protection facilities.	Implement Mitigation Measure PSR-1.	Less than significant impact.
<b>Impact PSR-3:</b> Buildout of the Master Plans would not result in a need for new or expanded schools beyond those contemplated by the project.	None required.	Less than significant impact.
<b>Impact PSR-4:</b> Buildout of the Master Plans would not result in a need for new or expanded park and recreational facilities beyond those contemplated by the project.	None required.	Less than significant impact.
<b>Impact PSR-5:</b> Buildout of the Master Plans would not result in a need for new or expanded public facilities such as libraries.	None required.	Less than significant impact.
<b>Section 3.14—Transportation</b>		
<b>Impact TRANS-1:</b> Buildout of the Master Plans would generate traffic under Existing Plus Approved Plus Project Conditions that may conflict with a program plan, ordinance or policy of the circulation system.	<b>MM TRANS-1a:</b> Prior to recordation of the first final map, the project applicant and the City of Patterson shall establish a Community Facilities District or other financing mechanism to fund transportation improvements. Applicants that pursue development in accordance with the Baldwin Master Plan and Zacharias Master Plan shall contribute a fair share of the costs of necessary improvements at the time building permits are sought through participation in the Community Facilities District or other financing mechanism.	Significant unavoidable impact.

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p><b>MM TRANS-1b:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the Interstate 5 / Sperry Avenue interchange. The improvements shall consist of the installation of signals at both ramp terminals and adaptive signal operations. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1c:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the Sperry Avenue / Rogers Road intersection. The improvements shall consist of additional eastbound left turn, eastbound right-turn and add additional through lane for both directions making Sperry Avenue four lane road. In addition, the improvements shall include the following lane geometry for Rogers Road extension northbound approach: double left-turn, through and right-turn lanes. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1d:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for widening Sperry Avenue to four lanes between Rogers Road and Baldwin Road. If determined to be necessary by the City of Patterson, an additional northbound left turn lane shall be installed. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1e:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for adding an eastbound through lane to Sperry Avenue at Del Puerto Avenue. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1f:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Sperry Avenue/State Route 33. The improvements shall consist</p>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>of signalizing the intersection and adding a left turn lane to each approach. If determined to be necessary by the City of Patterson, a second left turn lane shall be installed on the north bound approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1g:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of M Street / Walnut Avenue / State Route 33. The improvements shall consist of installing a shared through and right-turn lane on the southbound approach, an additional westbound left-turn lane and northbound right-turn lane and second through lane. If determined to be necessary by the City of Patterson, two through lanes shall be installed on SR-33. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1h:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Olive Avenue / State Route 33. The improvements shall consist of signalizing the intersection, adding a left turn lane to each approach and adding a second through lane on the northbound and south bound approach. If determined to be necessary by the City of Patterson, a second left turn lane shall be installed on the north bound approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1i:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Park Center / Keystone Pacific Parkway. The improvements shall consist of signalizing the intersection and adding an eastbound right-turn lane and northbound left-turn lane. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1j:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Rogers Road / Keystone Pacific Parkway. The improvements shall</p>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>consist of signalizing the intersection, adding a left turn lane to each approach, widening Rogers Road to two through lanes on each approach, and widening Keystone Pacific Parkway to two through lanes on each approach. In addition, a second southbound through lane on Rogers Road shall be installed. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1k:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Rogers Road / Zacharias Road. The improvements shall consist of signalizing the intersection, adding a left turn lane to each approach, and widening Zacharias Road to two through lanes on each approach. If determined to be necessary by the City of Patterson, Rogers Road shall be widened to provide three through lanes on the northbound approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1l:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Baldwin Road / Zacharias Road. The improvements shall consist of signalizing the intersection, adding a left turn lane to each approach, adding a second westbound left turn lane, adding a right turn lane and additional through lane on the northbound and southbound Baldwin Road, and widening Zacharias Road to two through lanes on each approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1m:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Zacharias Road / State Route 33. The improvements shall consist of adding two left-turn lanes on the northbound approach and two right-turn lanes on the eastbound approach. Additionally, the existing railroad grade crossing adjacent to this intersection shall be upgraded with gates, flashers, and a concrete panel roadbed. Because the proposed South County Corridor would reconfigure this intersection as an overcrossing, the City of Patterson has the discretion to forego this mitigation measure in order to avoid conflicts with the</p>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>planned improvements. The City shall transfer the fees to Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1n:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of State Route 33 / Eucalyptus Avenue. The improvements shall consist of signaling the intersection and widening State Route 33 to provide two lanes on each approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1o:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Baldwin Road / State Route 33. The improvements shall consist of signaling the intersection, adding a left turn lane on the northbound approach, and widening State Route 33 to provide two lanes on each approach. In addition, an additional eastbound left turn lane and additional through lane on the northbound approach shall be installed. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1p:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Rogers Road / State Route 33. The improvements shall consist of signaling the intersection, adding a left turn lane on the northbound approach, and widening State Route 33 to provide two lanes on each approach. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p><b>MM TRANS-1q:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Sycamore Avenue / E. Las Palmas Avenue. The improvements shall consist of signaling the intersection, adding left turn lanes on the northbound and southbound approaches. The City shall transfer the fees to the County of Stanislaus to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1r:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of West Main Avenue / Jennings Avenue. The improvements shall consist of signaling the intersection, adding a left turn lane on the eastbound approach. The City shall transfer the fees to the County of Stanislaus to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1s:</b> Prior to issuance of the first occupancy permit for the portion of the Zacharias Master Plan located east of Baldwin Road, the project applicant shall install improvements to the planned intersection of State Route 33 / East-West Connection. The improvements shall consist of signaling the intersection, installing two northbound left-turn and one southbound right-turn lanes, and widening State Route 33 to two lanes in each direction. The applicants are responsible for the full cost of these improvements. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1t:</b> Prior to issuance of the first occupancy permit for the portion of the Zacharias Master Plan located east of Baldwin Road, the project applicant shall install improvements to the planned intersection of Ward Avenue / East-West Connection. The improvements shall consist of signaling the intersection, installing two northbound left-turn lanes. If determined to be necessary by the City of Patterson, The East-West Connection shall provide two</p>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>lanes in each direction. The applicants are responsible for the full cost of these improvements. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1u:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of SR 33 / Grayson Road. The improvements shall consist of signalizing the intersection. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1v:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of State Route 33/ Marshall Road. The improvements shall consist of signalizing the intersection. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1w:</b> Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of State Route 33/ Crows Landing Road. The improvements shall consist of signalizing the intersection. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1x:</b> When monitoring determines that SR-33 between Baldwin Avenue and Sperry Avenue is approaching deficient operations, the 2-lane portion of the roadway shall be widened to four lanes. The City shall transfer the fees to Caltrans to implement the improvement provided that an agreement is in place with this agency. These improvements shall be</p>	

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<p>programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1y:</b> When monitoring determines that Zacharias Road between west of Baldwin Road and SR-33 is approaching deficient operations, the roadway will be widened to four lanes. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p> <p><b>MM TRANS-1z:</b> When monitoring determines that Baldwin Road between north of Zacharias Road and the New East West Connector is approaching deficient operations, the roadway shall be widened to four lanes. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.</p>	
<p><b>Impact TRANS-2:</b> Buildout of the Master Plans would generate traffic under 2040 Cumulative Plus Project Conditions that may conflict with a program plan, ordinance or policy of the circulation system.</p>	<p><b>MM TRANS-2a:</b> Prior to the approval of each map for the Zacharias Master Plan and Baldwin Master Plan, the applicant shall prepare plans for review and approval by the City of Patterson that identify the following applicable Transportation Demand Management Measures.</p> <ul style="list-style-type: none"> <li>● A clearly designated pedestrian circulation network within the site that links to the City of Patterson roadway network.</li> <li>● Secure bicycle parking in safe, strategic locations within the site.</li> <li>● Safety amenities such as lighting, sidewalks, and off-street pedestrian / bicycle paths.</li> </ul> <p><b>MM TRANS-2a:</b> Prior to the final approval for individual development projects that would employ more than 50 people that occur pursuant to the Zacharias Master Plan, the applicant shall retain a qualified transportation consultant to prepare a project-specific Transportation Demand Management Plan that includes the following applicable measures:</p> <ul style="list-style-type: none"> <li>● Transit, bicycle, and pedestrian facilities</li> <li>● Alternative work schedules</li> <li>● Guaranteed ride home</li> <li>● Carpool or vanpool program</li> <li>● Commute assistance and ride-matching</li> <li>● Shuttle program / shuttle consortium / fund transit service</li> </ul>	<p>Significant unavoidable impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	<ul style="list-style-type: none"> <li>● Transit passes or subsidies</li> <li>● Car share on-site</li> <li>● Self-Driving shuttle</li> <li>● Transportation Management Associations</li> <li>● Telework</li> </ul>	
<p><b>Impact TRANS-3:</b> Buildout of the Master Plans may conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).</p>	<p>Implement Mitigation Measures TRANS-2a and TRANS-2b.</p>	<p>Less than significant impact.</p>
<p><b>Impact TRANS-4:</b> Buildout of the Master Plans may substantially increase hazards due to a geometric design feature or incompatible uses.</p>	<p>Implement Mitigation Measure TRANS-1m.</p>	<p>Less than significant impact.</p>
<p><b>Impact TRANS-5:</b> Buildout of the Master Plans would not result in inadequate emergency access.</p>	<p>No mitigation is necessary.</p>	<p>Less than significant impact.</p>
<p><b>Section 3.15—Utilities and Service Systems</b></p>		
<p><b>Impact US-1:</b> Buildout of the Master Plans would not require additional water supplies to provide adequate water supply during normal, dry and multiple dry years.</p>	<p>No mitigation is required.</p>	<p>Less than significant impact.</p>
<p><b>Impact US-2:</b> Buildout of the Master Plans would not require additional unplanned treatment capacity at the Water Quality Control Facility.</p>	<p>No mitigation is necessary.</p>	<p>Less than significant impact.</p>
<p><b>Impact US-3:</b> Buildout of the Master Plans would not result in downstream flooding impacts from inadequate storm drainage infrastructure.</p>	<p>No mitigation is necessary.</p>	<p>Less than significant impact.</p>
<p><b>Impact USS-4:</b> Buildout of the Master Plans may generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.</p>	<p><b>MM USS-4:</b> Prior to issuance of building permits, the Master Plan applicants shall demonstrate compliance with the City of Patterson’s Construction and Demolition Debris Recycling Ordinance. The applicants shall prepare a waste management plan that identifies (1) the estimated volume or mass of construction and demolition debris; (2) the maximum volume or mass of such materials that can be feasibly diverted via reuse or recycling; (2) the vendor or facility that would collect and transport the</p>	<p>Less than significant impact.</p>

Impacts	Mitigation Measures	Level of Significance After Mitigation
	materials; and (4) the estimated volume and mass of materials that would be landfilled. The City of Patterson shall review and approve the plan and the applicant is required to implement the approved plan during construction activities.	

## SECTION 1: INTRODUCTION

### 1.1 - Overview of the CEQA Process

This Draft Environmental Impact Report (Draft EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the Baldwin Master Plan / Zacharias Master Plan (State Clearinghouse No. 2018122052). In conformance with CEQA (California Public Resources Code, Section 21000, et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000, et seq.), this Draft EIR is intended to serve as an informational document for the public agency decision makers and the public regarding the Baldwin Master Plan / Zacharias Master Plan (proposed project).

#### 1.1.1 - Overview

The proposed project consists of two separate Master Plans, Baldwin and Zacharias, that together involve the annexation of 1,297 acres into the City of Patterson and contemplate the development of residential, mixed use, commercial, industrial, school, parks, and open space uses. The combined buildout potential of the Master Plans is 5,086 dwelling units; 7,765,000 square feet of non-residential uses; two schools; a dual use stormwater basin / recreational facility; and 76 acres of parks / open space. Section 2, Project Description provides a complete description of the proposed project.

#### 1.1.2 - Purpose and Authority

This Draft EIR provides a project-level analysis of the environmental effects of the Baldwin Master Plan / Zacharias Master Plan Project. The environmental impacts of the proposed project are analyzed in the EIR to the degree of specificity appropriate, in accordance with CEQA Guidelines Section 15146. This document addresses the potentially significant adverse environmental impacts that may be associated with the planning, construction, or operation of the project. It also identifies appropriate and feasible mitigation measures and alternatives that may be adopted to significantly reduce or avoid these impacts.

CEQA requires that an EIR contain, at a minimum, certain specific elements. These elements are contained in this Draft EIR and include:

- Table of Contents
- Introduction
- Executive Summary
- Project Description
- Environmental Setting, Significant Environmental Impacts, and Mitigation Measures
- Cumulative Impacts
- Significant Unavoidable Adverse Impacts
- Alternatives to the Proposed Project
- Growth-Inducing Impacts

- Effects Found Not To Be Significant
- Areas of Known Controversy

### 1.1.3 - Lead Agency Determination

The City of Patterson is designated as the lead agency for the proposed project. CEQA Guidelines Section 15367 defines the lead agency as “. . . the public agency, which has the principal responsibility for carrying out or approving a project.” Other public agencies may use this Draft EIR in the decision-making or permit process and consider the information in this Draft EIR along with other information that may be presented during the CEQA process.

This Draft EIR was prepared by FirstCarbon Solutions, an environmental consultant. Prior to public review, it was extensively reviewed and evaluated by the City of Patterson. This Draft EIR reflects the independent judgment and analysis of the City of Patterson as required by CEQA. Lists of organizations and persons consulted and the report preparation personnel is provided in Section 8 of this Draft EIR.

## 1.2 - Scope of the EIR

This Draft EIR addresses the potential environmental effects of the proposed project. The City of Patterson issued a Notice of Preparation (NOP) for the proposed project on December 21, 2018, which circulated between December 21, 2018 and January 22, 2019 for the statutory 30-day public review period. The scope of this Draft EIR includes the potential environmental impacts identified in the NOP and issues raised by agencies and the public in response to the NOP. The NOP is contained in Appendix A of this Draft EIR.

Eighteen comment letters were received in response to the NOP. They are listed in Table 1-1 and provided in Appendix A of this Draft EIR.

**Table 1-1: NOP Comment Letters**

Status	Affiliation	Author	Date
Public Agency	Governor’s Office of Planning and Research, State Clearinghouse	Scott Morgan, Director	December 21, 2018
	Native American Heritage Commission	Sharaya Souza, Staff Services Analyst	December 27, 2018
	Central Valley Regional Water Quality Control Board	Jordan Hensley, Environmental Scientist	January 15, 2019
	Turlock Irrigation District	Todd Troglin, Supervising Engineering Technician, Civil	January 16, 2019

Status	Affiliation	Author	Date
	West Stanislaus Fire Protection District	William Ross, Attorney, Law Offices of William D. Ross	January 16, 2019
	Del Puerto Health Care District	John Anderson, J.B. Anderson Land Use Planning	January 17, 2019
	California Department of Transportation, District 10	Tom Dumas	January 18, 2019
	California Department of Conservation, Division of Land Resource Protection	Monique Wilber, Conservation Program Support Supervisor	January 18, 2019
	Patterson Irrigation District	Jeanne Zolezzi, Attorney-at-Law, Herum Crabtree Suntang	January 22, 2019
	West Stanislaus Irrigation District	Jeanne Zolezzi, Attorney-at-Law, Herum Crabtree Suntang	January 22, 2019
	Stanislaus County Environmental Review Committee	Patrick Cavanah, Senior Management Consultant	January 22, 2019
	Stanislaus Local Agency Formation Commission	Sara Lytle-Pinhey, Executive Officer	January 22, 2019
	San Luis & Delta-Mendota Water Authority	Frances Mizuno, Assistant Executive Director	January 22, 2019
	California Public Utilities Commission	Matt Cervantes, Utilities Engineer	January 24, 2019
Private Parties	Private Citizen	Barbara Vega	January 7, 2019
	Private Citizens	Henry and Jill Gnesa	January 18, 2019
	Sarasqueta Properties	Phil Sarasqueta	January 22, 2019
	Private Citizen	Donald Hess	January 22, 2019
Source: City of Patterson, 2019.			

### 1.2.1 - Scoping Meeting

Pursuant to CEQA Guidelines Section 15082(c), the City of Patterson held a public scoping meeting on Thursday, January 17, 2019, at Patterson City Hall to receive comments on the scope and content

of the Draft EIR. Approximately 25 persons attended the meeting. The sign-in sheet from the scoping meeting is provided in Appendix A.

### 1.2.2 - Environmental Issues Determined not to be Significant

The NOP identified topical areas that were determined not to be significant. An explanation of why each area is determined not to be significant is provided in Section 7, Effects Found not to be Significant. These topical areas are as follows:

- Mineral Resources
- Wildfire

In addition, certain subjects with various topical areas were determined not to be significant. Other potentially significant issues are analyzed in these topical areas; however, the following issues are not analyzed:

- Conflicts with Forest Zoning
- Loss of Forestland
- Conflicts with Conservation Plans
- Septic or Alternative Wastewater Disposal Systems

An explanation of why each issue is determined not to be significant is provided in Section 7, Effects Found not to be Significant.

### 1.2.3 - Potentially Significant Environmental Issues

The NOP found that the following topical areas may contain potentially significant environmental issues that will require further analysis in the EIR. These sections are as follows:

- Aesthetics, Light, and Glare
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems

## 1.3 - Organization of the EIR

This Draft EIR is organized into the following main sections:

- **Section ES: Executive Summary.** This section includes a summary of the proposed project and alternatives to be addressed in the Draft EIR. A brief description of the areas of controversy and issues to be resolved, and overview of the Mitigation Monitoring and Reporting Program, in addition to a table that summarizes the impacts, mitigation measures, and level of significance after mitigation, are also included in this section.
- **Section 1: Introduction.** This section provides an introduction and overview describing the purpose of this Draft EIR, its scope and components, and its review and certification process.
- **Section 2: Project Description.** This section includes a detailed description of the proposed project, including its location, site, and project characteristics. A discussion of the project objectives, intended uses of the Draft EIR, responsible agencies, and approvals that are needed for the proposed project are also provided.
- **Section 3: Environmental Impact Analysis.** This section analyzes the environmental impacts of the proposed project. Impacts are organized into major topic areas. Each topic area includes a description of the environmental setting, methodology, significance criteria, impacts, mitigation measures, and significance after mitigation. The specific environmental topics that are addressed within Section 3 are as follows:
  - **Section 3.1—Aesthetics, Light, and Glare:** Addresses the potential visual impacts of development intensification and the overall increase in illumination produced by the project.
  - **Section 3.2—Agricultural Resources:** Addresses the potential for conversion of Important Farmland to non-agricultural use and forest land to non-forest use.
  - **Section 3.3—Air Quality:** Addresses the potential air quality impacts associated with project implementation, as well as consistency with the San Joaquin Valley Air Pollution Control District Air Quality Management Plan. In addition, the section also evaluates project emissions of greenhouse gases.
  - **Section 3.4—Biological Resources:** Addresses the project’s potential impacts on habitat, vegetation, and wildlife; the potential degradation or elimination of important habitat; and impacts on listed, proposed, and candidate threatened and endangered species.
  - **Section 3.5—Cultural Resources and Tribal Cultural Resources:** Addresses potential impacts on historical resources, archaeological resources, paleontological resources, and burial sites. In addition, the section addresses potential impacts on tribal cultural resources.
  - **Section 3.6—Geology, Soils, and Seismicity:** Addresses the potential impacts the project may have on soils and assesses the effects of project development in relation to geologic and seismic conditions.
  - **Section 3.7—Greenhouse Gas Emissions and Energy:** Evaluates project emissions of greenhouse gases.

- **Section 3.8—Hazards and Hazardous Materials:** Addresses the potential for the presence of hazardous materials or conditions on the project site and in the project area that may have the potential to impact human health.
- **Section 3.9—Hydrology and Water Quality:** Addresses the potential impacts of the project on local hydrological conditions, including drainage areas, and changes in the flow rates.
- **Section 3.10—Land Use:** Addresses the potential land use impacts associated with division of an established community and consistency with the City of Patterson General Plan, the Patterson Municipal Code, and Local Agency Formation Commission policies.
- **Section 3.11—Noise:** Addresses the potential noise impacts during construction and at project buildout from mobile and stationary sources. The section also addresses the impact of noise generation on neighboring uses.
- **Section 3.12—Population and Housing:** Addresses the potential of the proposed project to induce direct or indirect population growth.
- **Section 3.13—Public Services and Recreation:** Addresses the potential impacts upon public services, including fire protection, law enforcement, schools, parks, and recreational facilities.
- **Section 3.14—Transportation:** Addresses the impacts on the local and regional roadway system, public transportation, bicycle, and pedestrian access.
- **Section 3.15—Utilities and Services Systems:** Addresses the potential impacts upon service providers, including fire protection, law enforcement, water supply, wastewater, solid waste, and energy providers.
- **Section 4: Cumulative Effects.** This section discusses the cumulative impacts associated with the proposed project, including the impacts of past, present, and probable future projects.
- **Section 5: Alternatives to the Proposed Project.** This section compares the impacts of the proposed project with three land-use project alternatives: the No Project Alternative, the Zacharias Master Plan Only Alternative, the Reduced Density Alternative, and the Ivy Avenue Connection Alternative. An environmentally superior alternative is identified. In addition, alternatives initially considered but rejected from further consideration are discussed.
- **Section 6: Other CEQA Considerations.** This section provides a summary of significant environmental impacts, including unavoidable and growth-inducing impacts. This section discusses the cumulative impacts associated with the proposed project, including the impacts of past, present, and probable future projects. In addition, the proposed project's energy demand is discussed.
- **Section 7: Effects Found not to be Significant.** This section contains analysis of the topical sections not addressed in Section 3.
- **Section 8: Persons and Organizations Consulted/List of Preparers.** This section also contains a full list of persons and organizations that were consulted during the preparation of this Draft

EIR. This section also contains a full list of the authors who assisted in the preparation of the Draft EIR, by name and affiliation.

- **Section 9: References.** This section contains a full list of references that were used in the preparation of this Draft EIR.
- **Appendices.** This section includes all notices and other procedural documents pertinent to the Draft EIR, as well as all technical material prepared to support the analysis.

## 1.4 - Documents Incorporated by Reference

As permitted by CEQA Guidelines Section 15150, this Draft EIR has referenced several technical studies, analyses, and previously certified environmental documentation. Information from the documents, which have been incorporated by reference, has been briefly summarized in the appropriate section(s). The relationship between the incorporated part of the referenced document and the Draft EIR has also been described. The documents and other sources that have been used in the preparation of this Draft EIR include but are not limited to:

- City of Patterson General Plan
- Patterson Municipal Code
- City of Patterson Urban Water Management Plan

These documents are specifically identified in Section 9, References, of this Draft EIR. In accordance with CEQA Guidelines Section 15150(b), the General Plan, the Urban Water Management Plan, and the referenced documents and other sources used in the preparation of the Draft EIR are available for review at Patterson City Hall at the address shown in Section 1.6.

## 1.5 - Documents Prepared for the Project

The following technical studies and analyses were prepared for the proposed project:

- Land Evaluation and Site Assessment Model (Appendix B).
- Air Quality / Energy / Greenhouse Analysis (Supporting information only; Appendix C)
- Biological Resources Analysis (Supporting information only; Appendix D)
- Cultural Resources Analysis (Supporting information only; Appendix E)
- Hydrological Analysis (Supporting information only; Appendix F)
- Noise Analysis (Supporting information only; Appendix G)
- Traffic Impact Study (Appendix H)
- Water Supply Analysis (Appendix I)

## 1.6 - Review of the Draft EIR

Upon completion of the Draft EIR, the City of Patterson filed a Notice of Completion (NOC) with the State Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161). Concurrent with the NOC, this Draft EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3).

During the public review period, the Draft EIR, including the technical appendices, is available for review at Patterson City Hall and the Patterson Library. The address for each location is provided below:

Patterson City Hall	Patterson Library
1 Plaza Circle	46 North Salado Avenue
Patterson, CA 95363	Patterson, CA 95363
Hours: 8:00 a.m. to 5:00 p.m.	Hours: 12:00 p.m. to 6:00 p.m.
Monday-Friday	Monday-Thursday
Closed Saturday-Sunday	11:00 a.m. to 5:00 p.m. Friday
	Closed Saturday-Sunday

Agencies, organizations, and interested parties have the opportunity to comment on the Draft EIR during the 45-day public review period. Written comments on this Draft EIR should be addressed to:

Mr. Joel Andrews, City Planner  
City of Patterson  
Community Development Department  
1 Plaza Circle  
Patterson, CA 95363  
Phone: 209.895.8020  
Email: [jandrews@ci.patterson.ca.us](mailto:jandrews@ci.patterson.ca.us)

Submittal of electronic comments in Microsoft Word or Adobe PDF format is encouraged. Upon completion of the public review period, written responses to all significant environmental issues raised will be prepared and made available for review by the commenting agencies at least 10 days prior to the public hearing before the City Council on the proposed project, at which the certification of the Final EIR will be considered. Comments received and the responses to comments will be included as part of the record for consideration by decision makers for the proposed project.

## SECTION 2: PROJECT DESCRIPTION

This Environmental Impact Report (EIR) analyzes the potential environmental effects of the Baldwin Master Plan / Zacharias Master Plan Project (proposed project) in Patterson, California. Each Master Plan is independent of each other; however, because both involve similar types of development and in the same geographical area, they are being evaluated in a single EIR.

### 2.1 - Project Location and Setting

#### 2.1.1 - Location

The Master Plans encompass a total of 1,227.1 acres outside the Patterson city limits in unincorporated Stanislaus County, California; refer to Exhibit 2-1.

The 1,158.4-acre Zacharias Master Plan is bounded by Rogers Road (west), Zacharias Road (north), the California Northern Railroad tracks and Ward Avenue (east), and existing residential and business park uses (south); refer to Exhibit 2-2.

The 68.7-acre Baldwin Master is located at the southern terminus of Baldwin Road and is bounded by the Delta-Mendota Canal (west), the City of Patterson Corporation Yard (north), and agricultural uses (east and south); refer to Exhibit 2-2.

The Master Plans are located on the Patterson, California United States Geological Survey (USGS) 7.5-Minute Quadrangle, Township 5 South, Range 7 East, Sections 23 and 24 (Latitude 37° 29' 00" North; Longitude 121° 9' 00" West).

#### 2.1.2 - Existing Conditions

##### Zacharias Master Plan

###### *West of Baldwin Road*

This planning area contains agricultural land (orchards and row crops). A cluster of residential and agricultural buildings is present along Baldwin Avenue. West Stanislaus Irrigation District irrigation canal Lateral Six South, meanders from south-to-north through the western portion of this area; refer to Exhibit 2-3.

###### *East of Baldwin Road*

This planning area contains agricultural land (row crops) west of the Patterson Irrigation District (PID) Lateral M canal and the "Ranchette Triangle" residential area on the east side. West Stanislaus Irrigation District (WSID) irrigation canal Lateral Five South runs south-to-north, parallel to Baldwin Road.

An approximately 143.7-acre area, known as the Ranchette Triangle, is located in the eastern portion of the Zacharias Master Plan. The Ranchette Triangle consists of 31 parcels, 24 of which support a residence. Of the 24 parcels with a residence, 15 of them are residential only (most of which are 1 acre or less), while the others support some agricultural acreage as well. The largest parcels (4 acres

or more) support most of the agricultural acreage; refer to Exhibit 2-3. Six of the parcels, totaling 47.73 acres, are encumbered by active Williamson Act Contracts;<sup>1</sup> refer to Exhibit 3.2-4 in the Agricultural Resources section.

### Baldwin Master Plan

This planning area consists of orchards, along with a cluster of residential and agricultural buildings at the terminus of Baldwin Road; refer to Exhibit 2-2 and Exhibit 2-3.

### 2.1.3 - Surrounding Land Uses

Table 2-1 summarizes the surrounding land uses for Zacharias Master Plan and Baldwin Master Plan areas.

**Table 2-1: Surrounding Land Use Summary**

Area	West	North	East	South
Zacharias Master Plan	Rogers Road; Arambel Business Park (City of Patterson)	Zacharias Road; agricultural land (unincorporated Stanislaus County)	California Northern Railroad right-of-way; State Route 33 (unincorporated Stanislaus County); Ward Avenue; single-family residential uses (City of Patterson)	Keystone Pacific Business Park; single-family residential uses (City of Patterson)
Baldwin Master Plan	Dela-Mendota Canal <sup>2</sup> ; agricultural land (unincorporated Stanislaus County)	Tank Road; City of Patterson Corporation Yard; fallow agricultural land (City of Patterson)	Baldwin Road; agricultural land (unincorporated Stanislaus County)	Agricultural land (unincorporated Stanislaus County)

Source: FCS 2019.

### 2.1.4 - Land Use Designations

#### County of Stanislaus

The Stanislaus County General Plan designates the Zacharias Master Plan area as “Agriculture” (west of the PID Lateral M canal) and “Urban Transition” (east of the PID Lateral M canal). The Stanislaus County Zoning Ordinances zones this area “General Agriculture (A-2)” (west of the PID Lateral M canal) and “General Agriculture (A-2-10)” (east of the PID Lateral M canal).

The Stanislaus County General Plan designates the Baldwin Master Plan area as “Agriculture.” The Stanislaus County Zoning Ordinances zones this area as “General Agriculture (A-2).”

<sup>1</sup> The City of Patterson protested the Williamson Act Contracts that encumbered these parcels when these properties were added to the City’s Sphere of Influence in the 1990s. Refer to Section 3.2, Agricultural Resources for further discussion.

<sup>2</sup> The Delta-Mendota Canal is a 117-mile aqueduct that conveys delta water from the Clifton-Court Forebay in Contra Costa County to the Mendota Pool on the San Joaquin River in Fresno County. Refer to Section 3.9, Hydrology and Water Quality for further discussion of the Delta-Mendota Canal.

## City of Patterson

The City of Patterson General Plan designates both Master Plan areas as “Low Density Residential,” which is a non-binding designation. This is also a “placeholder” land use designation the City has assigned to unincorporated areas around the Patterson city limits and does not necessarily signify that the City intends for all of this land to be developed as low-density residential.

## Sphere of Influence

The approximately 137-acre Ranchette Triangle is within the Patterson Sphere of Influence. All other portions of both Master Plan areas are outside the Patterson Sphere of Influence.

## 2.2 - Project Characteristics

### 2.2.1 - Proposed Project

The proposed Master Plans consist of the annexation of the planning areas into the City of Patterson and the development of residential, mixed use, commercial, industrial, school, parks, and open space uses. The buildout potential of the combined Master Plans is 5,086 dwelling units and 7,765,000 square feet of non-residential uses. The Master Plan process is being led by five property ownership groups (Zacharias Ranch, TFP Development, Lakeside Hills, Keystone Ranch, and Baldwin Ranch) that control 1,160 acres. The Master Plan Development Summary is provided in Table 2-2. Exhibit 2-4 depicts the location of each development area within the Zacharias Master Plan boundaries.

**Table 2-2: Zacharias Master Plan / Baldwin Master Plan Development Summary**

Planning Area	Development Area	Location	Land Use	Gross Acreage	Density	Dwelling Units	Square Footage
Zacharias Master Plan	Zacharias Ranch	East of Rogers Road; South of Zacharias Road; West of Baldwin Road	Medium Density Residential	125.3	5.4–5.5	700	—
			Community Commercial	22.2	—	—	350,000
			Light Industrial	317.5	—	—	6,910,000
			Park	10.0	—	—	—
			Trails	3.7	—	—	—
			<i>Subtotal</i>	<i>478.7</i>	—	<i>700</i>	<i>7,260,000</i>
	TFP Development	West of Baldwin Road; North of Keystone Pacific Business Park	Low Density Residential	64.8	5.1	378	—
			Medium Density Residential	30.9	11.0	342	—
			Park	12.6	—	—	—
			Trails	3.5	—	—	—

Project Description

Planning Area	Development Area	Location	Land Use	Gross Acreage	Density	Dwelling Units	Square Footage
			<i>Subtotal</i>	119.7	—	720	—
	Lakeside Hills	East of Baldwin Road; South of Zacharias Road; West of PID Lateral M	Medium Density Residential	294.4	6.8	2,005	—
			High Density Residential	17.9	18.0	322	—
			Mixed Use	27.5	10.0	194	505,000
			Park	24.3	—	—	—
			Open Space/Lake	13.4	—	—	—
			Trails	10.2	—	—	—
			<i>Subtotal</i>	387.7	—	2,521	505,000
	Keystone Ranch		East of Baldwin Road; North of Patterson City Limits	Medium Density Residential	75.9	6.1–7.1	498
		High Density Residential		12.6	17.1	216	—
		Park		5.9	—	—	—
		Trails		2.9	—	—	—
		<i>Subtotal</i>		97.3	—	714	—
	Ivy Rose Gardens (Ranchettes)	West of Ward Avenue; East of PID Lateral M	Low Density Residential	143.7	3.0	431	—
Baldwin Master Plan	Baldwin Ranch	South end of Baldwin Road	Low Density Residential	60.9	5.0	305	—
			Park	2.0	—	—	—
			Park/Basin	2.0			
			Buffer/Trails	1.0			
			<i>Subtotal</i>	65.9	—	305	—
Total Project		—	Low Density Residential	216.4	—	809	—
			Medium Density Residential	536.9	—	3,454	—
			High Density Residential	30.5	—	538	—
			Mixed Use	27.5	—	—	505,000
			General	22.2	—	—	350,000

Planning Area	Development Area	Location	Land Use	Gross Acreage	Density	Dwelling Units	Square Footage
			Commercial				
			Light Industrial	317.5	—	—	6,910,000
			Park/Trails	62.7	—	—	—
			Open Space/Lake	13.4	—	—	—
			<b>Total</b>	<b>1,227.1</b>	<b>—</b>	<b>5,086</b>	<b>7,765,000</b>

Source: GDR Engineering 2019.

**Buildout Estimates**

At buildout, the Master Plans together would support an estimated 19,988 new residents and 8,670 employees. The Baldwin Master Plan would support a population of 1,199, while the Zacharias Master Plan would support a population of 18,789 and 8,670 employees. For the purposes of this EIR, buildout is assumed to occur over a 20-year period.

**Zacharias Master Plan**

The Zacharias Master Plan will contain the following elements:

- Land Use Plan with development standards and design guidelines. These elements will demonstrate that the project will achieve complete neighborhoods with a mix of uses, a diversity of housing types, a neighborhood center, and an interconnected system of bicycle and pedestrian paths. The development standards will outline allowed land uses in each of the areas along with allowable setbacks, height, and floor area ratios. The Land Use Plan includes community landscaping concepts with attractive gateway features, walls, and signage.
- Circulation Plan with a hierarchy of arterial, major, and minor collector streets that provide for ease of travel by auto, bicycles, and pedestrians. The arterial and collector street sections will include Class I or Class II bicycle paths and sidewalks separated from the roadway to encourage alternative modes of travel. The Circulation Plan includes traffic calming measures, including roundabouts.
- Community Facilities Plan, including parks, open space, and schools. The Parks and Open Space Plan will provide for neighborhood parks within walking distance from every home. The Plan includes design guidelines for the central open space and lake feature as an active community gathering space.
- Infrastructure and Public Facilities Plan with provisions for water, wastewater, and stormwater.
- Implementation Plan that includes project phasing and financing, the subdivision and development approval process, and affordable housing.

## **Land Use Plan**

The Zacharias Master Plan consists of four development areas: Zacharias Ranch, TFP Development, Lakeside Hills, and Keystone Ranch. Exhibit 2-5 depicts the Zacharias Master Plan Land Use Plan.

### *West of Baldwin Road (Zacharias Ranch and TFP Development)*

The area west of Baldwin Road would support a mix of residential, commercial, and industrial development. Residential uses consisting of 1,420 dwelling units at low and medium densities would be located in the eastern portion of the planning area along Baldwin Road within the Zacharias Ranch area. A 16-acre school site would be located in the center of this planning area. A 22.81-acre community commercial area is proposed at the southwest quadrant of the Zacharias Road/Baldwin Road intersection. Industrial uses would front Rogers Road, across from the Arambel Business Park.

### *East of Baldwin Road (Lakeside Hills and Keystone Ranch)*

The area east of Baldwin Road would support primarily residential uses and would be organized around several proposed man-made “lakes.” Residential uses would consist of 3,666 dwelling units at low, medium, and high densities. Mixed use would be designated around the western most-lake. The lakes would provide drainage, recharge, and recreational opportunities. A 14-acre school site would be located within this planning area (See discussion of schools later in this section).

### *Ranchette Triangle (Ivy Rose Gardens)*

At the time of this writing, the Ranchette Triangle property owners (also referred to as Ivy Rose Gardens) have not presented a development proposal to the City of Patterson. Moreover, six parcels are currently encumbered by active Williamson Act contracts and several property owners have expressed a desire to continue their existing land use activities for the foreseeable future. As such, the Master Plan has designated the Ivy Rose Gardens area as “Low Density Residential.” This designation allows property owners to continue their existing land use activities or develop residential uses at a density of no greater than 3.0 dwelling units per acre. Should property owners seek to develop higher density residential uses or non-residential uses, they would be required to undertake separate environmental review.

## **Baldwin Master Plan**

The Baldwin Master Plan will contain the following elements:

- Land Use Plan with development standards and design guidelines. These elements will demonstrate that the project will achieve complete neighborhoods with a mix of uses, a diversity of housing types, a neighborhood center, and an interconnected system of bicycle and pedestrian paths. The development standards will outline allowed land uses in each of the areas along with allowable setbacks, height, and floor area ratios. The Land Use Plan includes community landscaping concepts with attractive gateway features, walls, and signage.
- Circulation Plan with a hierarchy of arterial, major, and minor collector streets that provide for ease of travel by auto, bicycles and pedestrians. The arterial and collector street sections will include Class I or Class II bicycle paths and sidewalks separated from the roadway to

encourage alternative modes of travel. The Circulation Plan includes traffic calming measures, including roundabouts.

- Community Facilities Plan, including parks, open space, and schools. The Parks and Open Space Plan will provide for neighborhood parks within walking distance from every home. The Plan includes design guidelines for the central open space and lake feature as an active community gathering space.
- Infrastructure and Public Facilities Plan with provisions for water, wastewater, and stormwater.
- Implementation Plan that includes project phasing and financing, the subdivision and development approval process, and affordable housing.

### **Land Use Plan**

The Baldwin Master Plan would support exclusively residential uses. A park would be located in the center of this planning area. A 1-acre landscaped buffer would be provided around the City of Patterson Corporation Yard. Exhibit 2-6 depicts the Baldwin Master Plan Land Use Plan.

### **Circulation**

#### **Zacharias Master Plan**

East and west of Baldwin Road, a network of internal roadways would connect to Rogers Road, Zacharias Road, and Baldwin Road. These latter roadways would be improved to arterial roadway standards, as contemplated by the General Plan Circulation Element. Exhibit 2-7a depicts the Zacharias Master Plan circulation plan. Exhibit 2-7b depicts the Zacharias Master Plan street sections.

The circulation plan contemplates Rose Avenue and Ivy Avenue remaining cul-de-sacs with a gated Emergency Vehicle Access allowing restricted access to the Zacharias Master Plan area.

#### *New East-West Connection to Ward Avenue and State Route 33*

In lieu of or in addition to the aforementioned Ivy Avenue extension, the Zacharias Master Plan contemplates a separate east-west connection to Ward Avenue and State Route 33 (SR-33). Within the northern portion of the Ranchette Triangle, this roadway would follow the property line between the Torrison and Gupta properties. Between Ward Avenue and SR-33, this roadway would follow an undeveloped portion of a medical office property. Right-of-way acquisition would be required for this roadway. The roadway would be four lanes between SR-33 and the PID canal, where it would transition to two lanes.

The new intersection with SR-33 would be signalized. The existing Ward Avenue/SR-33 intersection would either be closed or converted to restricted access (e.g., right-in, right-out). Ward Avenue would ultimately be extended along the west side of the railroad tracks to provide access to the northern portion of the Ranchette Triangle.

The East-West Connection is shown in Exhibit 2-7a.

### *South County Corridor*

The Stanislaus Council of Governments is studying the development of a South County Corridor between Interstate 5 (I-5) near Patterson and SR-99 in Turlock. A Feasibility Study was released in 2016 that considered alignment options and recommended that three of the alternatives be carried forward for further review. Two of those alternatives contemplate an I-5/South County Corridor interchange northwest of the Master Plan area, with the alignment following Zacharias Road to SR-33, where a grade separated interchange would be constructed. Exhibit 2-7c depicts the South County Corridor Feasibility Study's roadway section for a six-lane expressway, which is the type of facility contemplated between I-5 and SR-33. As shown in the exhibit, the six-lane expressway section would be 135 feet wide. As such, the Zacharias Master Plan would reserve frontage that is within 67.5 feet of the Zacharias Road centerline for the planned South County Corridor.

The Master Plan's circulation plan accommodates these two alignments of the future South County Corridor and limits the number of connections along Zacharias Road.<sup>3</sup> If the South County Corridor is not developed along Zacharias Road, this roadway would still be improved to arterial standards. As shown in Exhibit 2-7b, Zacharias Road would have an 85-foot section under this scenario and, thus, the Zacharias Master Plan would need only dedicate frontage that is within 42.5 feet of the Zacharias Road centerline.

### **Baldwin Master Plan**

The circulation plan anticipates Baldwin Road being extended south to a future hypothetical extension of Elfers Road. Additionally, the City of Patterson Corporation Yard access road, would be improved and extended west to provide access to the western portion of this planning area. Exhibit 2-7d depicts the Baldwin Master Plan circulation plan.

### **School Sites**

At the request of Patterson Unified School District (PUSD), the Zacharias Master Plan identifies a 14-acre elementary school site east of Baldwin Road and a 16-acre middle school site west of Baldwin Road. Exhibit 2-8 depicts the conceptual locations of the school sites.

Following adoption of the Zacharias Master Plan entitlements, PUSD will have a defined period of time to exercise its option to acquire and develop the schools. Should PUSD forego acquiring and developing one or both school sites, the land would revert to the property owner for residential development.

PUSD is identified as a Responsible Agency and would have the option of using this EIR as the basis for satisfying its environmental review requirements for the development of the schools.

### **Future High School**

PUSD purchased 40 acres for a future high school at the northwest corner of Zacharias Road/Baldwin Road outside the Zacharias Master Plan boundaries. Although this high school is not within the scope of this EIR, a proposed flood control basin that is contemplated by the Zacharias Master Plan is

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<sup>3</sup> The other proposed alignment of the South County Corridor would connect to I-5 at Fink Road near Crows Landing, bypassing Patterson. This alignment would not have any implications of the Master Plan's circulation plan.

adjacent to this site. The future high school would receive flood protection benefits from this basin. Refer to the discussion of ‘Off-site Flood Control Basin’ that occurs later in this chapter.

## **Parks**

The Master Plan designates 62.7 acres of parks. These facilities would include active and passive parks and would be connected via a path network described below. Parks are shown on Exhibit 2-8.

## **Paths**

An off-street path system is proposed within the Master Plan area. Paths would follow features such as proposed roadways and existing irrigation canals. A 30-foot-wide trail corridor would be provided along the east side of Baldwin Road that would contain the WSID Lateral Five South Canal. Paths would be developed incrementally as the Master Plan area builds out. Exhibit 2-8 depicts the path network.

## **Infrastructure and Utilities**

### ***Storm Drainage***

The proposed project would include construction of a storm drainage system consisting of bioswales, inlets, and underground piping that would convey runoff to stormwater basins.

#### *Zacharias Master Plan*

The Storm Drain Master Plan for the Zacharias Master Plan is shown on Exhibit 2-9a. The storm drainage control facilities will be implemented within the Zacharias Master Planning Area with the intention of achieving following:

- Flood Control for the 10-year, 24-hour storm (detention basins) for individual areas, and corresponding Supervisory Control and Data Acquisition (SCADA) outlet devices and lines.
- Flood Control for the 100-year, 24-hour storm (retention basins and wet basin lakes) for the entire Zacharias Master Planning Area.
- The Federal Emergency Management Agency (FEMA) Solution for retaining the 100-year FEMA floodplain (183 acre-feet of runoff based on the 100-year Flood Depths for Del Puerto Creek Hydraulic Model by Balance Hydrologies, Inc.) for the Zacharias Master Planning Area.
- Recharge of the stormwater runoff into the lower aquifer groundwater table below to Corcoran Clay Layer, where the City’s potable water wells draw water from.

The storm drainage system will utilize multiple stages of storage involving both detention and retention purposes for the project site. The Zacharias Ranch Planning Area will utilize a mix of detention (designed for 10-year, 24-hour storage) and retention (designed for 100-year, 24-hour storage) basins. Both types of basins will have SCADA gravity outlet systems with corresponding pipelines to meter the flow out of the basins. The retention basins will be designed to drain stormwater through the SCADA system for up to a 10-year, 24 hour storm event, with the basin retaining and percolating the runoff for corresponding drainage areas for any storm event exceeding a 10-year, 24-hour event; up to a 100-year, 24 hour event. The TPF Development and Keystone

**Project Description**

Ranch Planning Areas will each have a retention basin with corresponding SCADA outlet systems draining to the lakes. The Ivy Rose Gardens Planning Area will have a detention basin with a pump station and force main for metering water out of the basin to the lakes. The pump station will be designed for a minimum 1360 gallons per minute (gpm) flowrate.

The Lakeside Hills Development Area will have a series of wet basin lakes for flood control. These lakes will be designed to hold the entirety of the 100-year, 24-hour storm event for the Lakeside Hills Development Area, as well as the difference between the 100-year and 10-year events for the detention basins within the Zacharias Ranch and Ivy Rose Gardens Planning Areas. This will achieve the ultimate goal of storing the 100-year, 24-hour storm event for the entirety of the Zacharias Master Planning Area between the lakes and retention basins. Consequently, the lakes will store the 10-year, 24-hour storm event for the entire Zacharias Master Planning Area, as both the detention and retention basins will drain to the lakes for any storm event equal to or below the 10-year event. The lakes will drain to a pump station that will meter out through a force main to the FEMA Basin. The pump station will have a maximum output of 2000 gpm for draining the lakes. Note that the dry basins (detention basins and retention basins) are designed for a maximum 48-hour drawdown period, whereas the lakes are not required as such.

The FEMA Basin will act as a solution to the FEMA requirement to divert or retain the 100-year flood runoff for the Zacharias Master Planning Area, which is shown in Exhibit 2-9b. The location of the basin is at a chokepoint in Del Puerto Creek 100-year flood hazard area and, thus, would capture flood flows 'upstream' of the Zacharias Master Plan area. The basin will be designed with a two-stage system for an upper reservoir and lower reservoir area. The lower reservoir will be utilized during smaller storms for a combination of runoff from the floodplain, and for intermediate storage for the stormwater pumped from the lakes. The upper reservoir will be reserved for major storms where floodplain runoff exceeds the lower reservoir. The basin will be designed to percolate the FEMA floodplain runoff within a 48-hour drawdown period. The basin will have an inlet structure attached to the force main coming from the wet basin lakes, and an outlet structure with corresponding pump station. The basin pump will operate at a maximum 2000 gpm flowrate, so as to drain the stormwater coming from the lakes, and a channel will be provided to minimize infiltration occurrence for the water from the lakes.

The outlet force main from the FEMA Basin will flow to the Recharge Basin Facility, to the northwest of the Zacharias Master Planning Area. The Recharge Basin Facility, shown in Exhibit 2-9c, will be located at the existing rock quarry, where a location has been designated by the City of Patterson. The location noted does not have the Corcoran Clay Layer (an impervious layer separating the potable and non-potable water tables), and instead infiltrates directly into the lower aquifer. The overall Zacharias Master Planning Area will have an annual runoff of 604 acre-feet per year, or 0.539 million gallons per day. The vast majority of this stormwater will be recharged through the Recharge Basin Facility.

The project area facilities provided will be subject to the most up-to-date version of the City of Patterson's Multi-Agency Post Construction Manual, and the corresponding Phase II Permit requirements for stormwater. The developers for each project area will be responsible for meeting

these requirements within their project areas (Zacharias Ranch, TPF Development, Keystone Ranch, Lakeside Hills, and Ivy Rose Gardens Planning Areas) and maintaining such facilities as required.

#### *Del Puerto Canyon Dam and Reservoir*

On October 21, 2020, the Del Puerto Water District certified the Final Environmental Impact Report (State Clearinghouse [SCH] No. 2019060254) for a proposed 82,000 acre-foot reservoir in Del Puerto Canyon, west of the City of Patterson. The reservoir would be impounded by a dam on Del Puerto Creek west of I-5. Should the dam and reservoir be constructed as proposed, it would provide flood protection benefits to the Zacharias Master Plan area and eliminate the need for the flood control basin. However, since the Del Puerto Canyon Reservoir has not been approved and fully funded at the time of this writing, the City of Patterson has conservatively assumed that the Zacharias Master Plan area would not receive any flood protection benefits from the dam and reservoir.

#### *Baldwin Master Plan*

The Baldwin Master Plan contemplates a storm drainage system consisting of bioswales, inlets, and underground piping that would convey runoff to stormwater basins. The Baldwin Master Plan storm drainage system would connect to the existing municipal system and no off-site improvements would be necessary. Exhibit 2-9d depicts the Baldwin Master Plan storm drainage system.

### **Water**

#### *Potable Water*

The City of Patterson would provide potable water service to the Master Plan areas. Additionally, property owners would be required to use non-potable groundwater for irrigation purposes. Exhibit 2-10a depicts the Zacharias Master Plan potable water system and Exhibit 2-10b depicts the Baldwin Master Plan potable water system.

#### *Non-Potable Water*

The City of Patterson would provide non-potable water service to the Zacharias Master Plan area. Exhibit 2-11 depicts the Zacharias Master Plan non-potable water system. The Baldwin Master Plan area is not proposed to be served with non-potable water.

### **Wastewater**

The City of Patterson would provide wastewater collection and treatment service to the Master Plan areas.

#### *Zacharias Master Plan*

The City of Patterson provides sanitary sewer service facilities for the City through the use of sanitary sewer main, trunks lines, pump stations, force mains, and the Sewer Treatment Plant. The Zacharias Master Planning Area will provide sanitary sewer collection systems for the planning areas.

The sewer main for the two southwestern warehouses in the Zacharias Ranch Planning Area leading south to the existing sewer main in Keystone Pacific Parkway. This will eventually tie into the existing trunk sewer system running through Sperry and Ward Avenues.

**Project Description**

For the TPF Development, Keystone Ranch, and the southern parcels of the Ivy Rose Gardens Planning Areas, a new sewer main will be constructed in Rose Avenue and Ward Avenue to the existing sewer main on Vicki Lynn Lane. The existing 10-inch sewer line on Vicki Lynn Lane will be upgraded to a larger 12-inch line heading southeast towards Salado Creek; up to the existing 8-inch line running parallel to North 4<sup>th</sup> Street that currently connects to the M Street Trunk Line. A new line on 4<sup>th</sup> Street will be constructed to help re-route the sewer past the existing blockage in the sewer system on M Street, with the existing 8-inch line being rebuilt/refurbished as necessary. The connection on Ward Avenue and Vicki Lynn Lane will be a temporary connection until the North Patterson Trunk Sewer (NPTS) Line is constructed and operational to the Zacharias Master Planning Area. Upon the operation of the NPTS Line, a sewer line will be constructed to connect north to the NPTS Line, and the connection to Vicki Lynn Lane will be disconnected.

The Lakeside Hills Planning Area, and remainder of the Ivy Rose Gardens and Zacharias Ranch Planning Areas, will connect to the NPTS Line where appropriate. Their construction will be triggered after construction of the NPTS Line up to their property limits, or whenever appropriate afterwards. The NPTS Line will be sized and constructed based on the proposed buildout within the City of Patterson Sewer Master Plan.

The project area sanitary sewer facilities are as shown on Exhibit 2-12a. The extension of the NPTS Line, including sizing and facilities, will be as shown on Exhibit 2-12b. The temporary connection to Vicki Lynn Lane and re-routing of the sewer main on 4th Street will be as shown on Exhibit 2-12c.

**Baldwin Master Plan**

The City of Patterson provides sanitary sewer service facilities for the City through the use of sanitary sewer main, trunks lines, pump stations, force mains, and the Sewer Treatment Plant. The Baldwin Ranch Master Planning Area will provide sanitary sewer collection systems for the planning area.

A sewer main will be constructed in Baldwin Road connecting the Baldwin Ranch Planning Area. This line will flow north; connecting to the existing North Sperry Trunk Line (NSTL) in Sperry Avenue. The NSTL is currently not in operable conditions and is disconnected from the existing working trunk sewer main in Sperry Avenue. Prior to connection to the NSTL, work will be done on rehabbing the existing NSTL and reconnecting it to the existing trunk sewer system. This is consistent with the current City of Patterson Sewer Master Plan.

The layout of the sewer facilities will be as shown on Exhibit 2-12d.

**Electricity**

Turlock Irrigation District would provide electrical service to the Zacharias Master Plan and Baldwin Master Plan. All new electrical lines and service laterals would be located underground.

**Natural Gas**

Pacific Gas and Electric Company (PG&E) would provide natural gas service to the Zacharias Master Plan and Baldwin Master Plan. All new gas lines and service laterals would be located underground.

**Canals**

*Zacharias Master Plan*

The existing PID and WSID irrigation canals located within the Zacharias Master Plan may be relocated underground as pipelines as the area builds out. The WSID Lateral Five South Canal that parallels Baldwin Road would be converted to an underground pipeline to accommodate the 30-foot landscaped buffer/Class I pathway. Additionally, their alignments may change to accommodate roadway improvements. All modifications to these facilities would occur in cooperation with PID and WSID.

*Baldwin Master Plan*

No modifications are proposed to the Delta-Mendota Canal as part of the development of the South Area. A setback would be established between the canal and the proposed uses.

**Phasing**

***Zacharias Master Plan***

A summary of the Zacharias Master Plan phasing is provided in Table 2-3. The areas closest to existing development would develop first, followed by the outlying areas, and finally the Ivy Rose Gardens. This phasing plan reflects the economic factors associated with the costs of new infrastructure and, therefore, the areas that require the least costly infrastructure would develop first. The phasing plan is conceptual and does not preclude overlapping phases. Exhibit 2-13 depicts the phasing plan.

**Table 2-3: Zacharias Master Plan Phasing Summary**

Phase	Development Area	Gross Acreage	Dwelling Units	Square Footage
1A	Keystone Ranch	97.3	714	—
1B	TFP Development	199.7	720	—
1C	Zacharias Ranch	478.7	—	7,260,000
2A	Zacharias Ranch	478.7	700	—
2B	Lakeside Hills	387.7	2,521	505,000
3A	Ivy Rose Gardens	143		
3B	Ivy Rose Gardens	143		

Source: GDR Engineering 2019.

***Baldwin Master Plan***

The Baldwin Master Plan would be developed in a single phase.

## Discretionary Approvals

### ***Sphere of Influence Adjustment, Annexation, and Detachment***

The Patterson Sphere of Influence would be adjusted to include the 1,160 acres of the Master Plan area that are currently outside of this boundary. The entire 1,297 Master Plan area would be annexed into the City of Patterson.

Because the Master Plan area would be located within the Patterson city limits (and thus receive City services), the affected parcels would be detached from the PID and the West Stanislaus Fire Protection District. Property owners will have the discretion to enter into Out-of-Boundary Service Agreements with PID and WSID in order to continue to receive irrigation water for continuation of interim agricultural activities.

### ***General Plan Amendment and Prezone***

A General Plan Amendment would be processed to designate the Master Plan area with the appropriate land use designations. The Master Plan area would be prezoned in a similar fashion.

## 2.3 - Project Objectives

The objectives of the proposed project are to:

1. Promote positive contribution to the local and regional economy through new capital investment, creation of new employment and housing opportunities, and expansion of the tax base.
2. Develop a mix of new residential uses in proximity to a regional job center.
3. Continue to attract new businesses to the City of Patterson by providing adequate, available land and infrastructure.
4. Facilitate buildout of the City of Patterson General Plan.
5. Maintain a high quality of life in the City of Patterson through the provision of schools, parks, open spaces, and trails in residential areas.
6. Facilitate the development of the South County Corridor by reserving land for the future alignment of this transportation corridor and limiting new connections from the Master Plan area.
7. Promote land use compatibility with the Ranchette area by appropriately citing roadway connections and affording property owners the option of maintaining their existing land use activities or developing low density residential uses.
8. Ensure that the Patterson city limits are expanded in an orderly and logical manner.
9. Avoid the premature conversion of viable agricultural land through the use of buffers and by affording property owners the ability to continue to farm their land until the time is right for development.

10. Work with PID and WSID to protect groundwater resources and their irrigation canals as the Master Plan area transitions from agricultural/rural residential to urban use.

## 2.4 - Intended Uses of This Draft EIR

This Draft EIR is being prepared by the City of Patterson to assess the potential environmental impacts that may arise in connection with actions related to implementation of the proposed project. Pursuant to CEQA Guidelines Section 15367, the City of Patterson is the lead agency for the proposed project and has discretionary authority over the proposed project and project approvals. The Draft EIR is intended to address all public infrastructure improvements and all future development that are within the parameters of the proposed project.

### 2.4.1 - Discretionary and Ministerial Actions

Discretionary approvals and permits are required by the City of Patterson for implementation of the proposed project. The project application would require the following discretionary approvals and actions, including:

- Certification of the Environmental Impact Report
- Master Plan Adoption
- General Plan Amendment
- Prezone
- Subdivision Maps; Parcel Maps
- Use Permit(s)
- Design Review
- Development Agreement(s)

Additionally, approval of the project would require the following discretionary approvals from Stanislaus County Local Agency Formation Commission:

- Adjustment of Sphere of Influence
- Annexation/Detachment
- Out of Boundary Service Agreement(s)

Subsequent ministerial actions would be required for the implementation of the proposed project including issuance of grading and building permits.

### 2.4.2 - Responsible and Trustee Agencies

A number of other agencies in addition to the City of Patterson will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and Section 15386, respectively. This Draft EIR will provide environmental information to these agencies and other public agencies, which may be required to grant approvals or coordinate with other agencies, as part of project implementation. These agencies may include, but are not limited to, the following:

- United States Army Corps of Engineers
- United States Fish and Wildlife Service

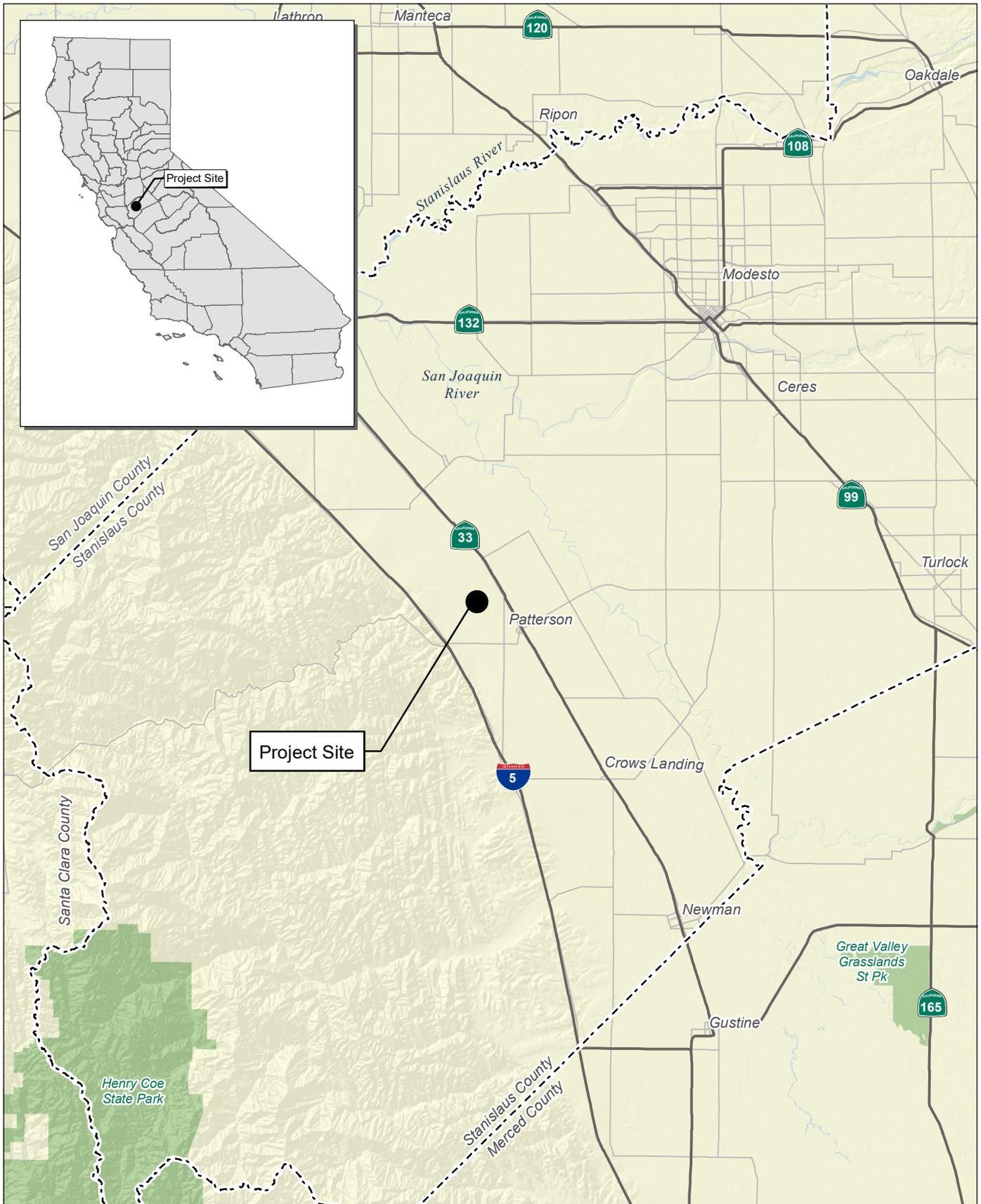
**Project Description**

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- San Luis and Delta-Mendota Water Authority
- California Department of Fish and Wildlife
- Central Valley Regional Water Quality Control Board
- California Department of Transportation
- California Public Utilities Commission
- San Joaquin Valley Air Pollution Control Board
- County of Stanislaus
- Stanislaus Local Agency Formation Commission
- Stanislaus Council of Governments
- Patterson Unified School District
- Patterson Irrigation District
- Wets Stanislaus Irrigation District
- West Stanislaus Fire Protection District

Actions that are necessary to implement the project that must be taken by other agencies are:

- Issuance of Clean Water Act Section 404 Individual and Nationwide Permits and Section 401 Water Quality Certification.
- Issuance of Lake and Streambed Alteration Agreements.
- Rule 9510 Indirect Source Review
- Adjustment of Sphere of Influence
- Annexation/Detachment
- Approval of Out-of-Boundary Service Agreement(s)
- School Site Development Approvals



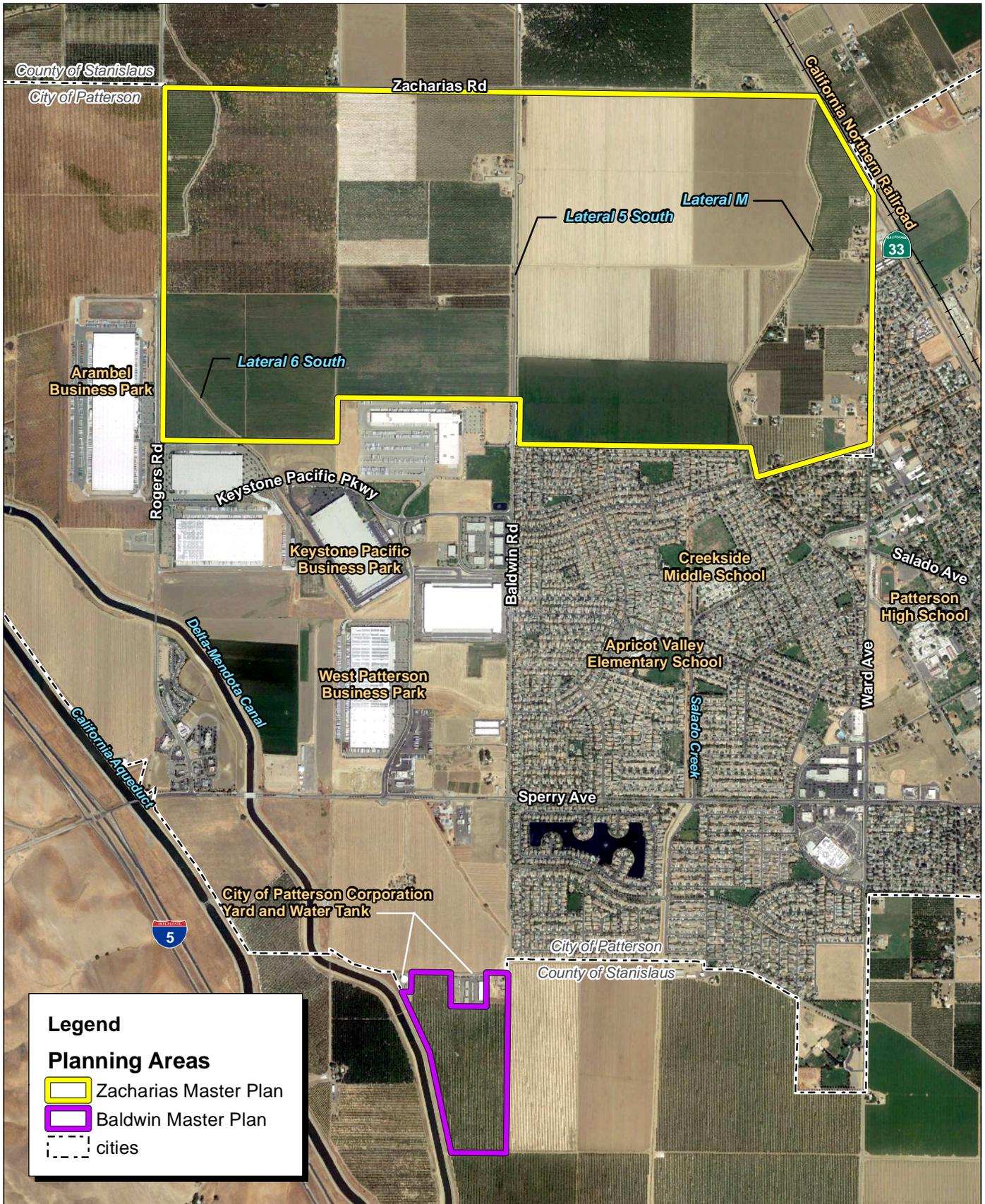
Source: Census 2000 Data, The CaSIL.

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## Exhibit 2-1 Regional Location Map

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Source: Google Earth Aerial Imagery.



Exhibit 2-2  
Local Vicinity Map  
Aerial Base

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View of Zacharias Master Plan area from Rogers Road / Zacharias Road.



View of Zacharias Master Plan area from Baldwin Road.

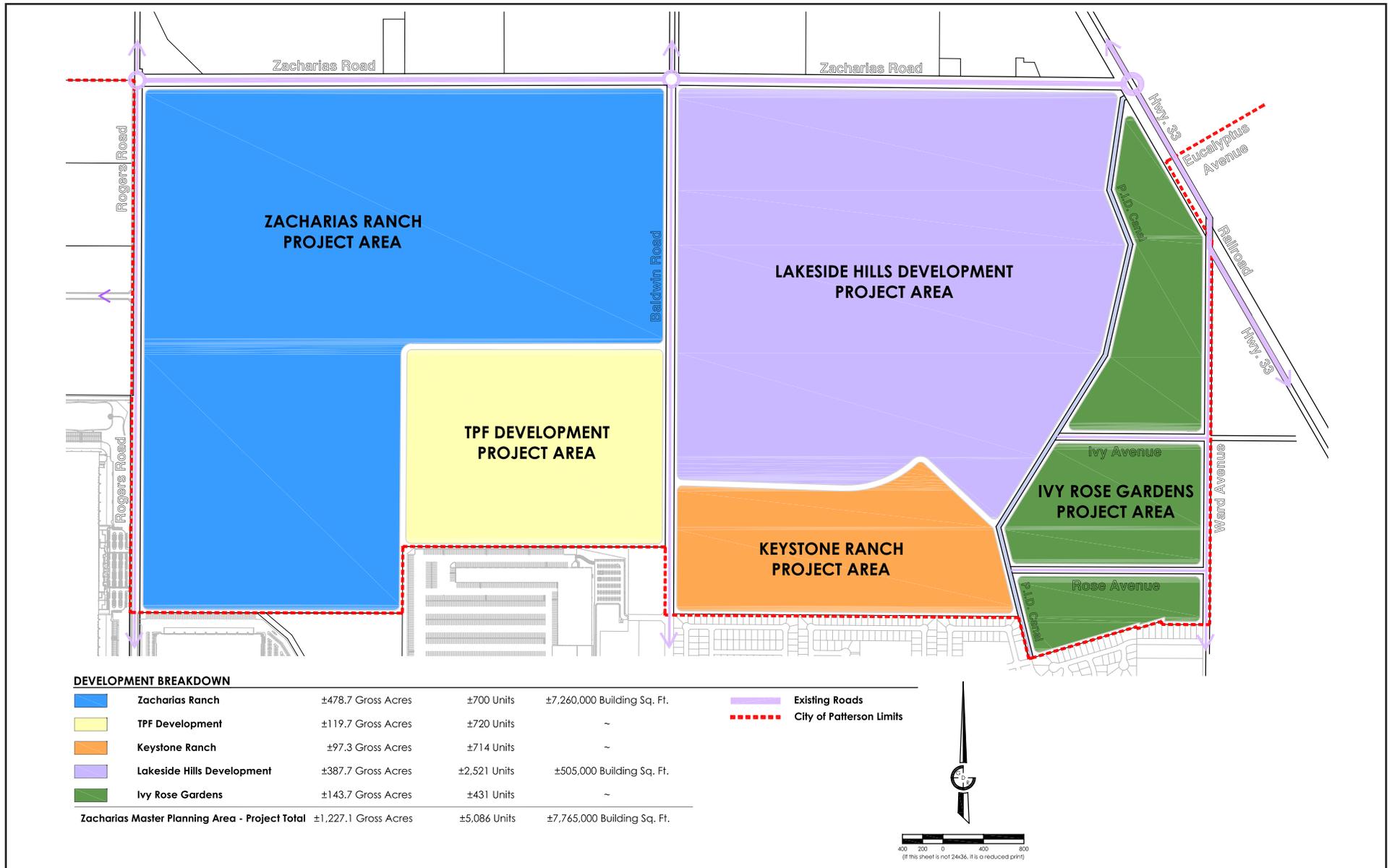


View of Ranchette Triangle from Ward Avenue.



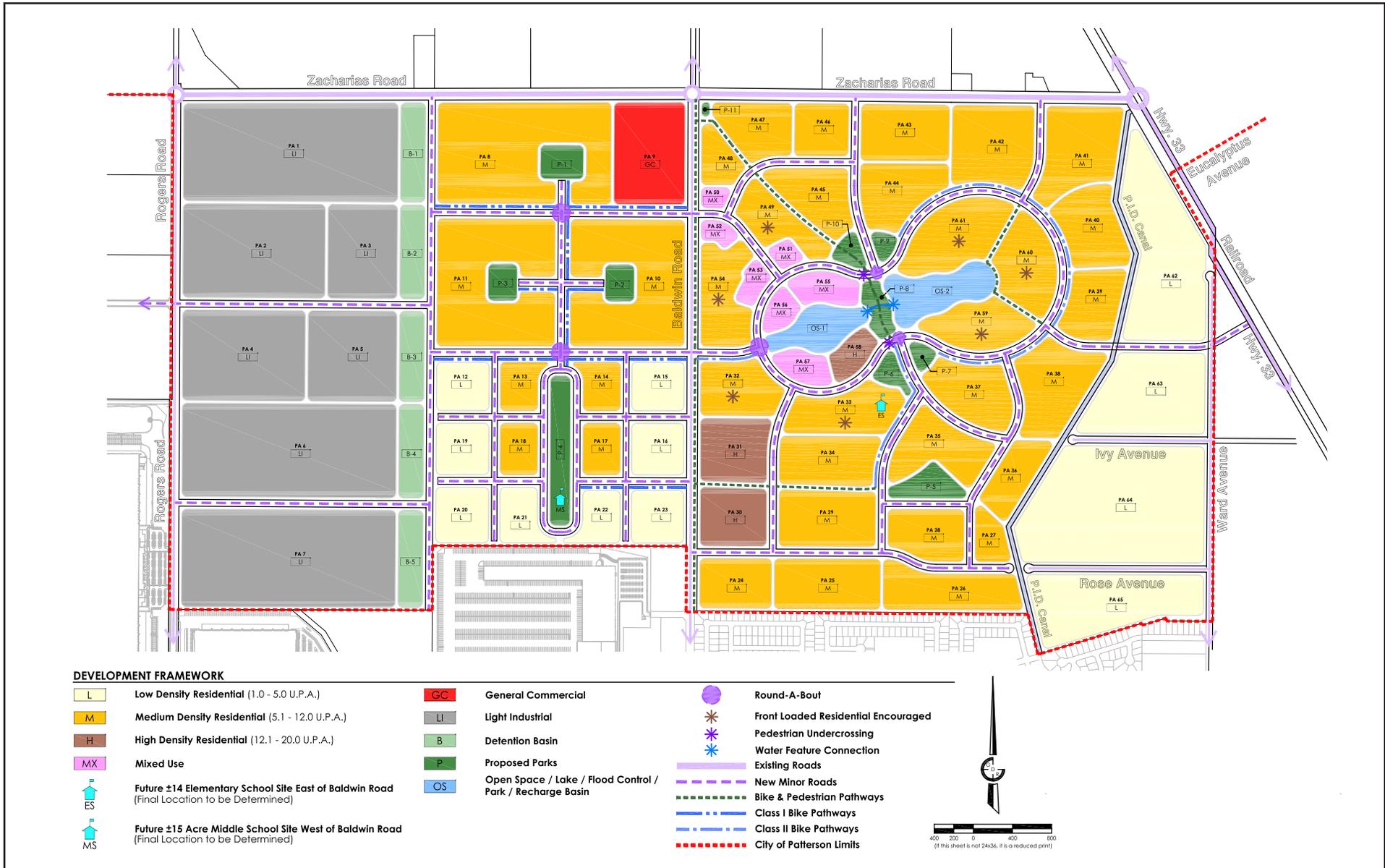
View of Baldwin Master Plan area from Baldwin Road.

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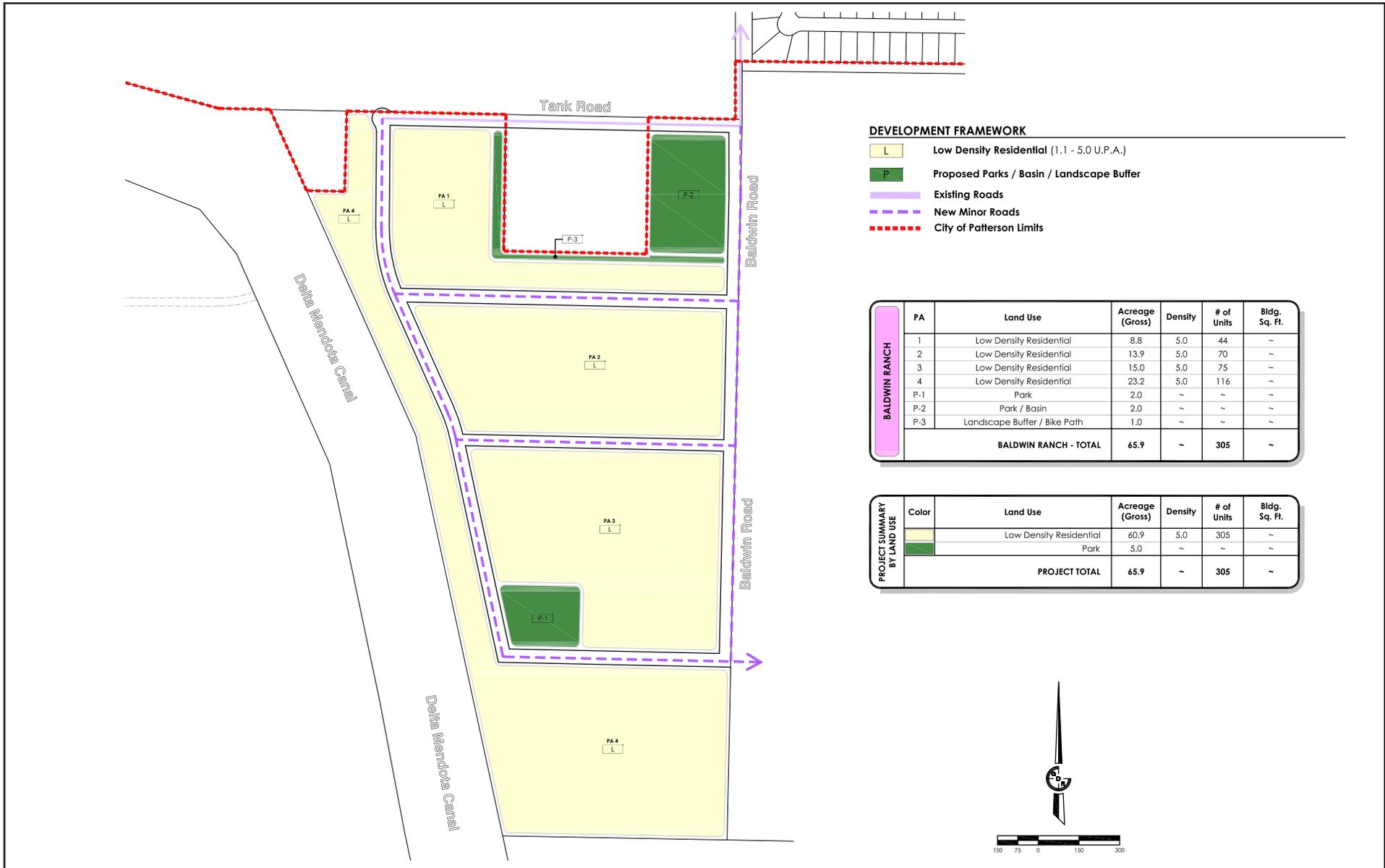
Source: GDR Engineering, Inc., October 3, 2019.

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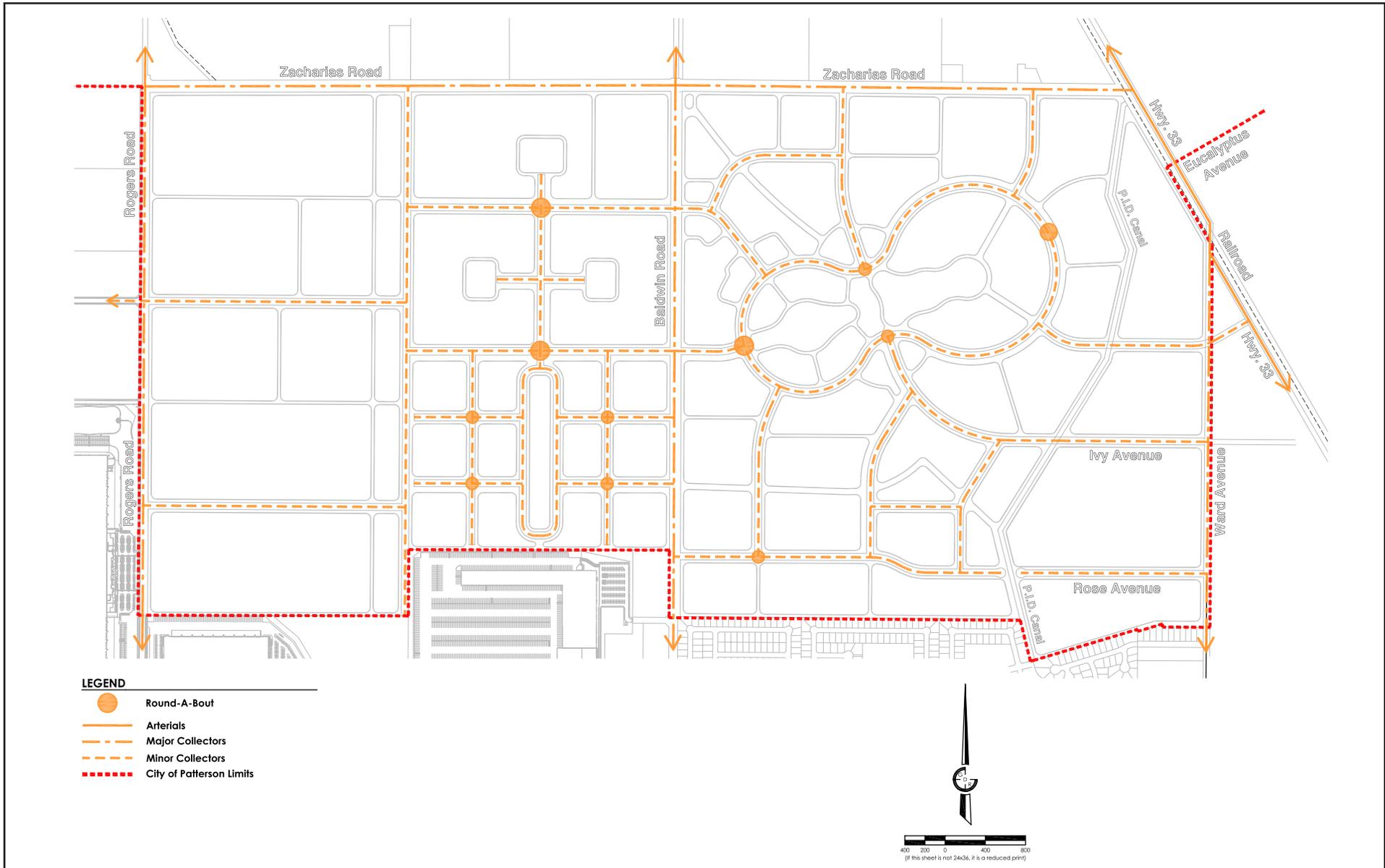
Source: GDR Engineering, Inc., October 3, 2019.

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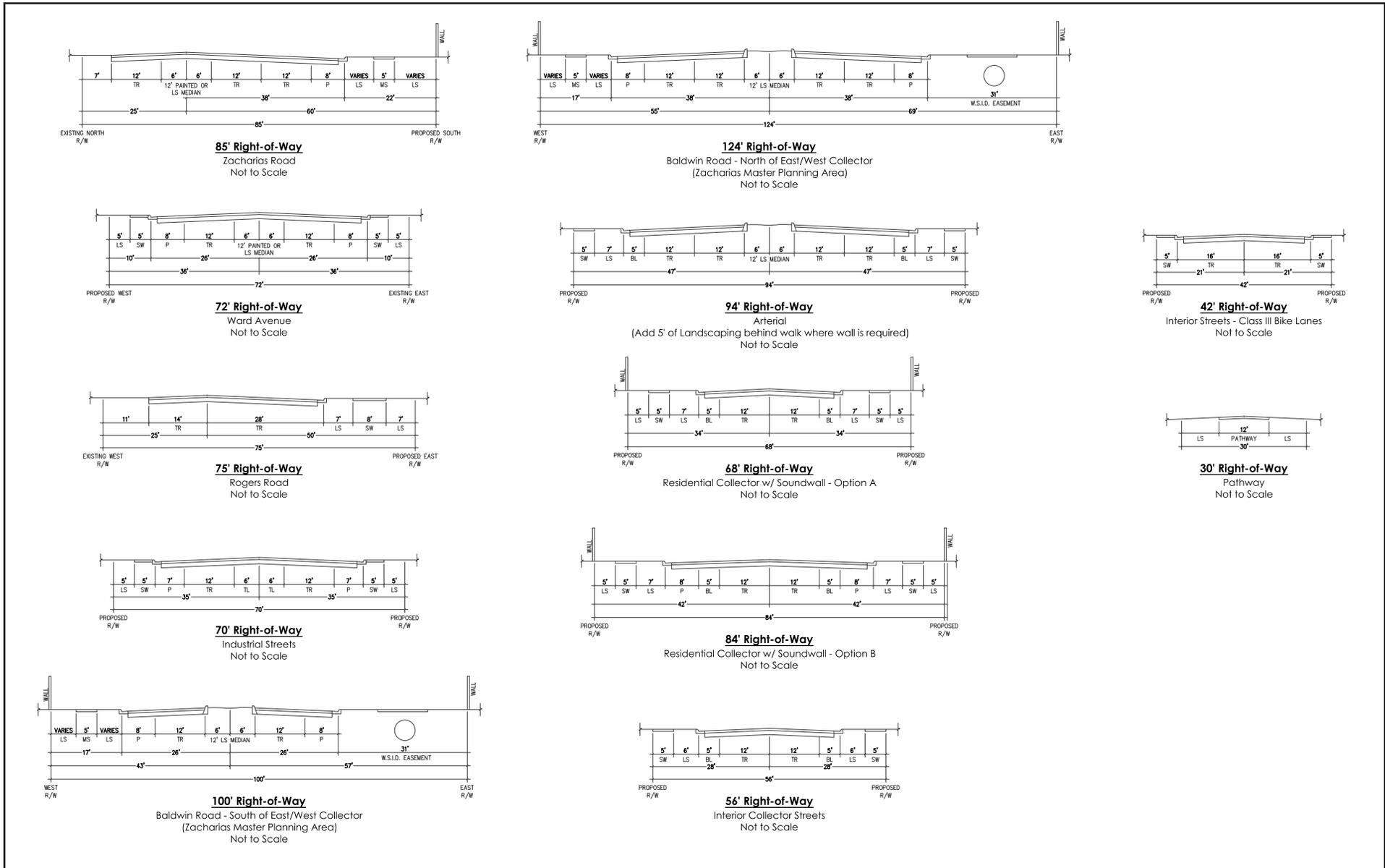
Source: GDR Engineering, Inc., July 22, 2019.

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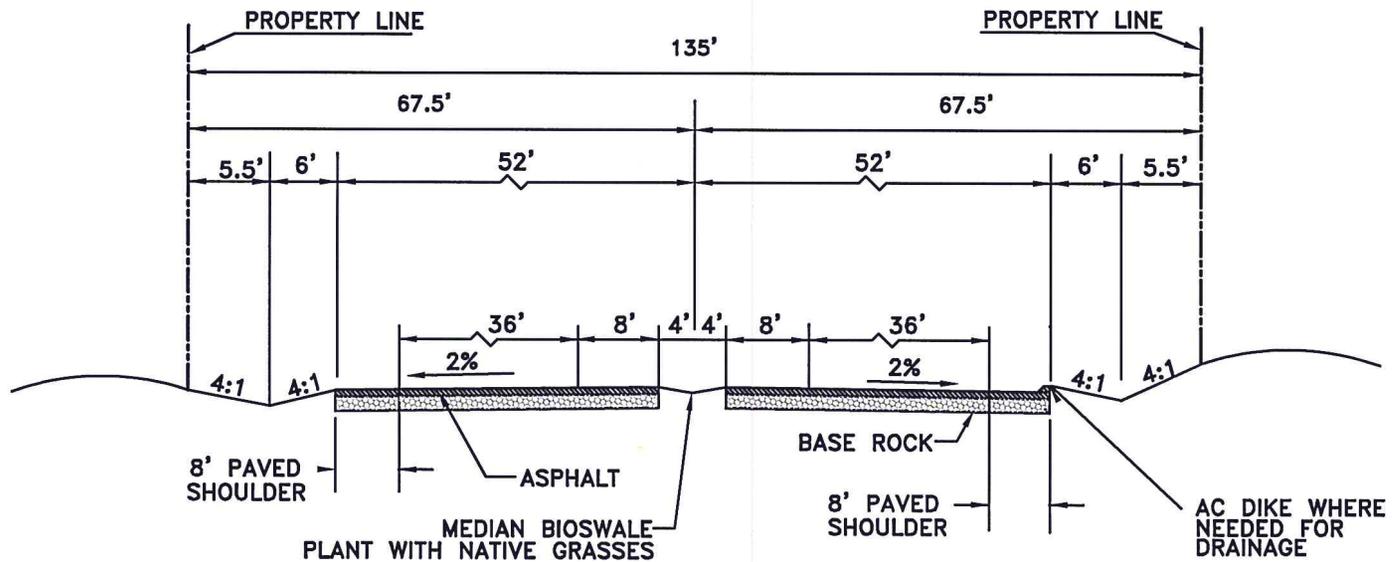
Source: GDR Engineering, Inc., July 22, 2019.

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Source: GDR Engineering, Inc., July 15, 2020.

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**NOTE:**

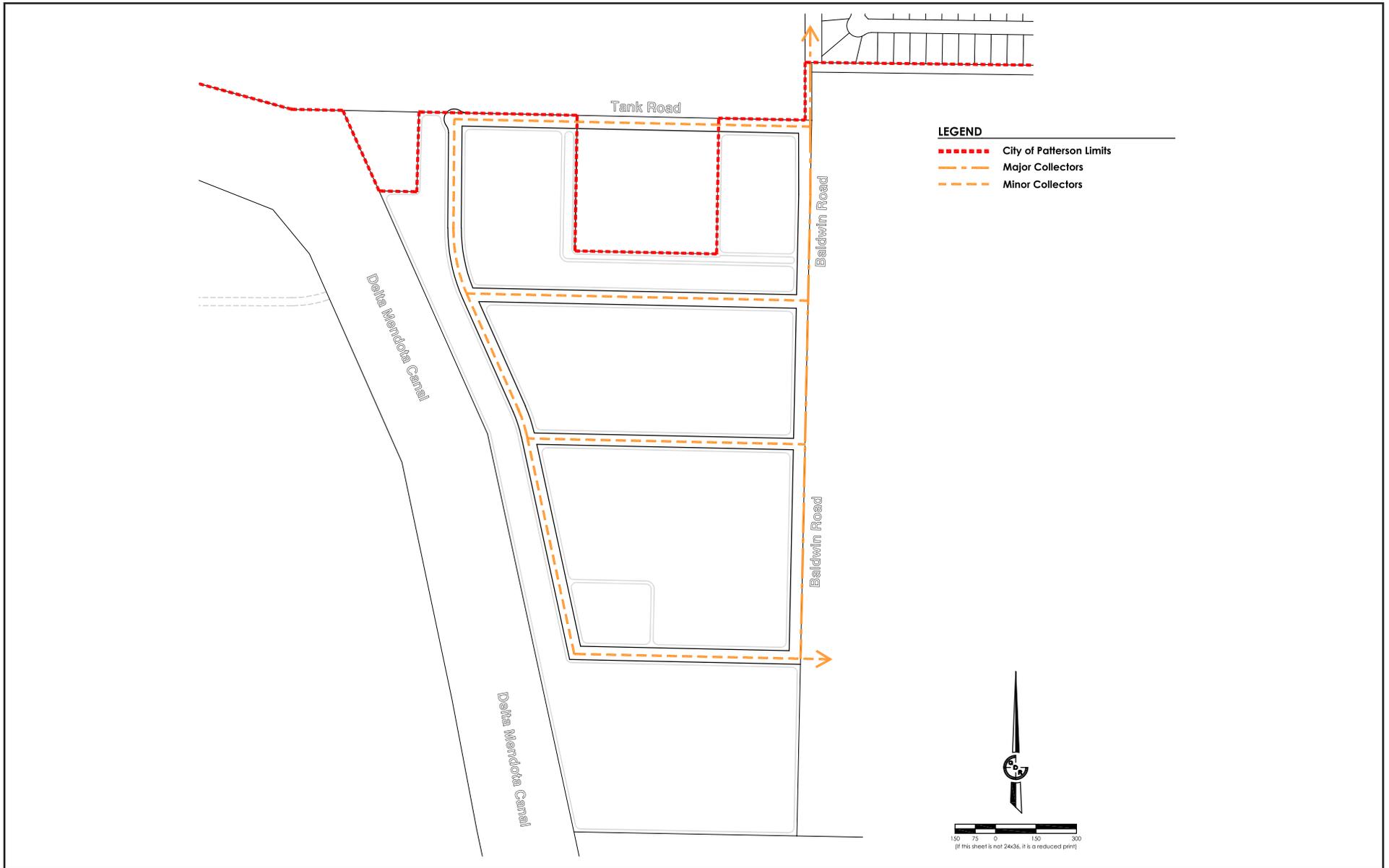
1. PROVIDE MINIMUM 8 FT PAVED SHOULDER.
2. PAVEMENT CROSS SLOPE SHALL BE 2.0% MINIMUM ON NEW ROAD CONSTRUCTION.
3. ADDITIONAL SLOPE EASEMENTS MAY BE REQUIRED FOR ADEQUATE DRAINAGE.
4. INSTALL AC DIKE WHERE REQUIRED FOR DRAINAGE, SEE CROSS SECTION ABOVE.
5. DIVIDE TRAVEL LANES WITH UNPAVED MEDIAN AS SHOWN.
6. UNDERGROUND FRENCH DRAIN MAYBE REQUIRED IN THE SWALE AREA TO HELP CONTROL GRADING AND/OR DRAINAGE.

Source: Stanislaus County, June 2014.

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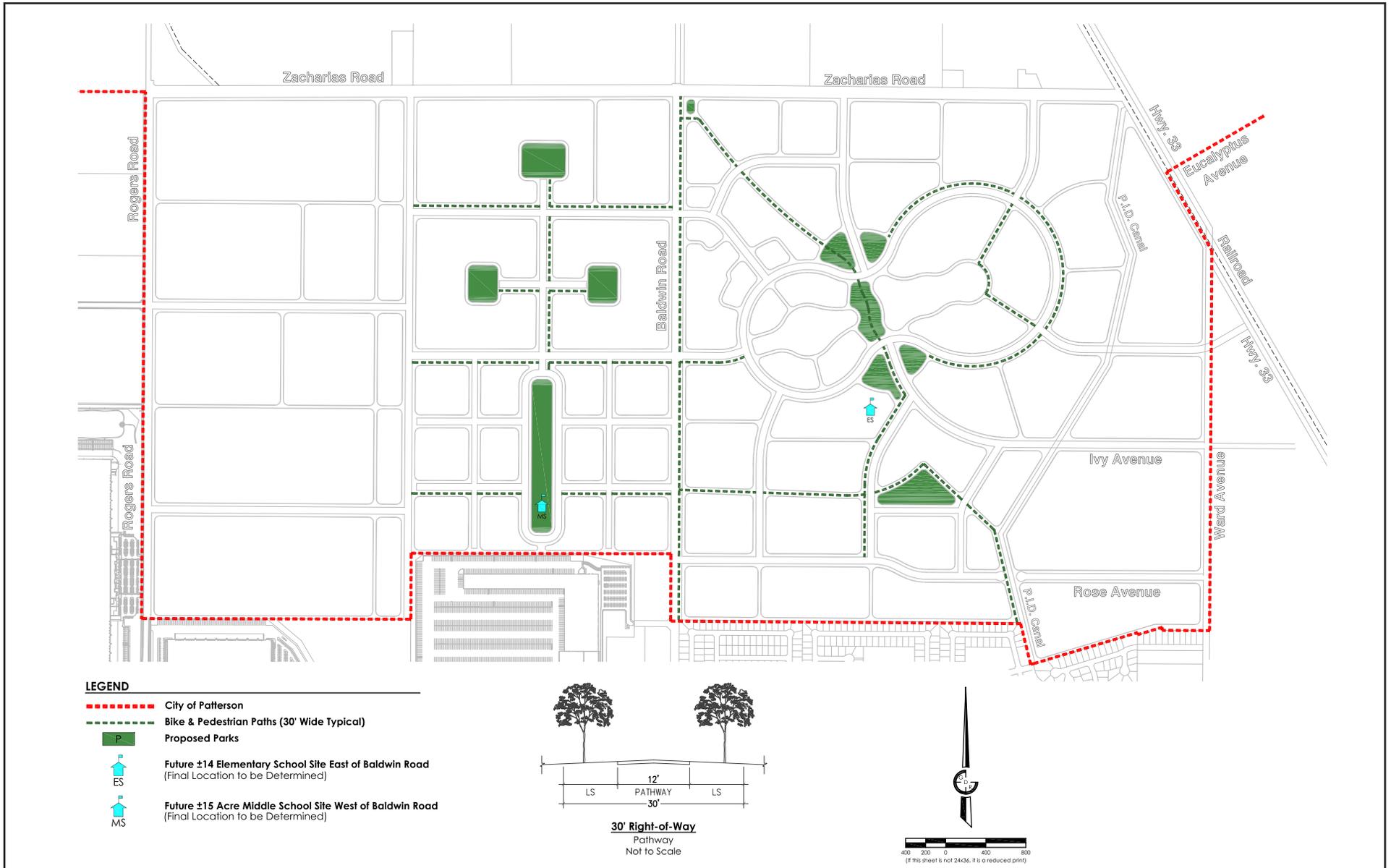
Exhibit 2-7c  
South County Corridor  
6-Lane Rural Expressway Section

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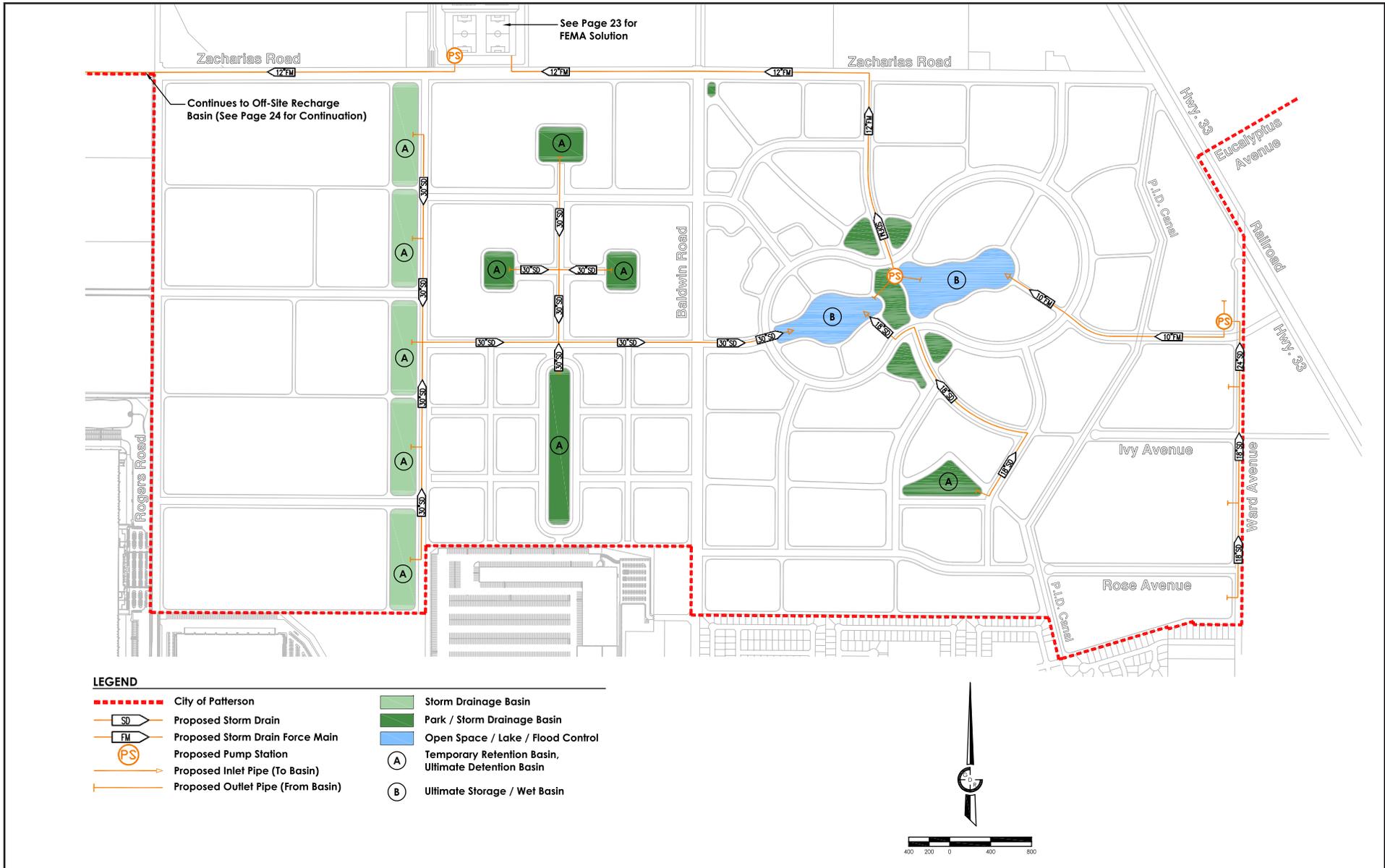
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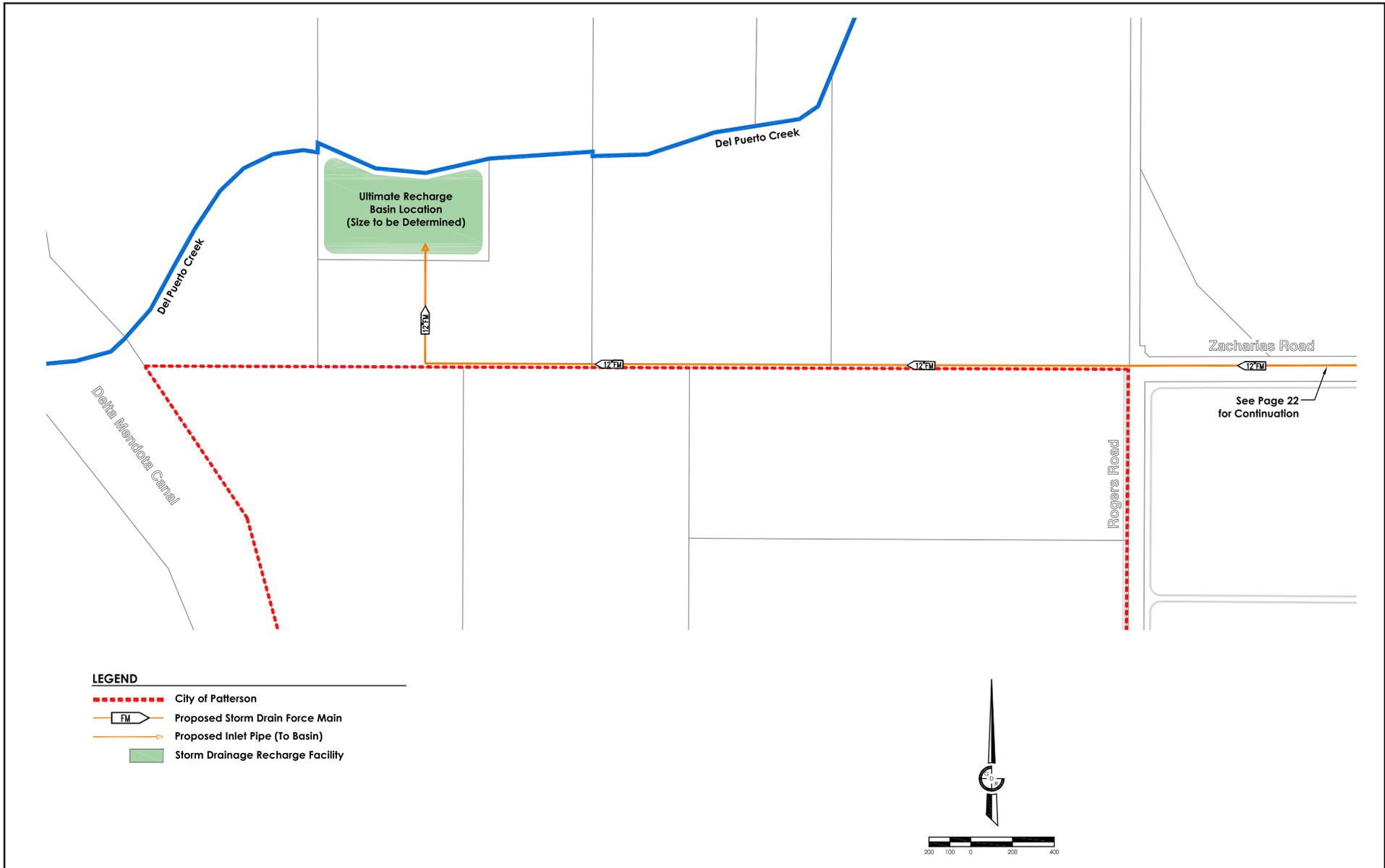


**LEGEND**

- SDFM
PS
  - PS
  - PS
  -
- Proposed Storm Drain Force Main     FEMA Solution Storm Drainage Basin  
PS Proposed Pump Station  
 Proposed Inlet Pipe (To Basin)  
 Proposed Outlet Pipe (From Basin)

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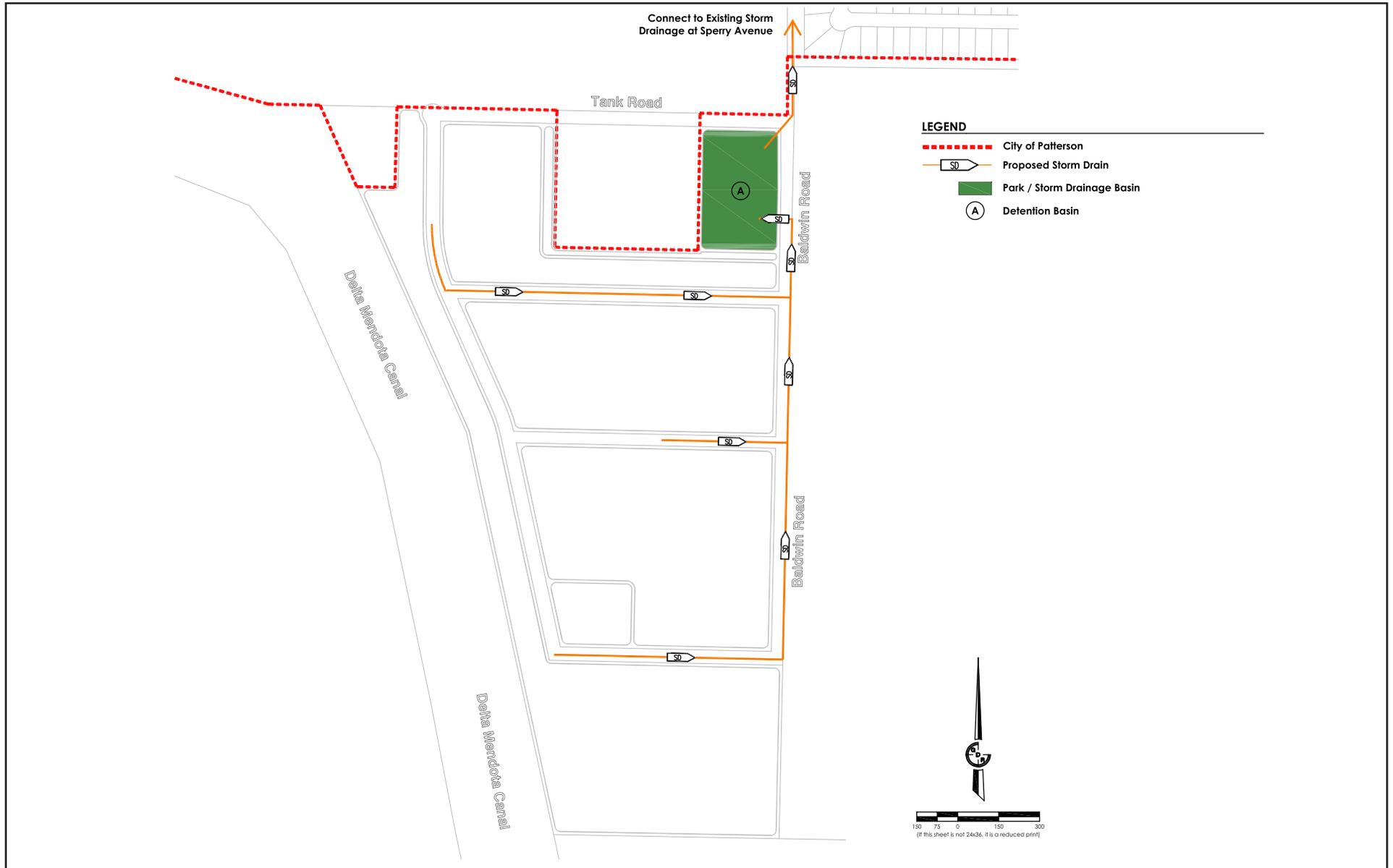


**LEGEND**

- - - - - City of Patterson
- FM —> Proposed Storm Drain Force Main
- > Proposed Inlet Pipe (To Basin)
- Storm Drainage Recharge Facility

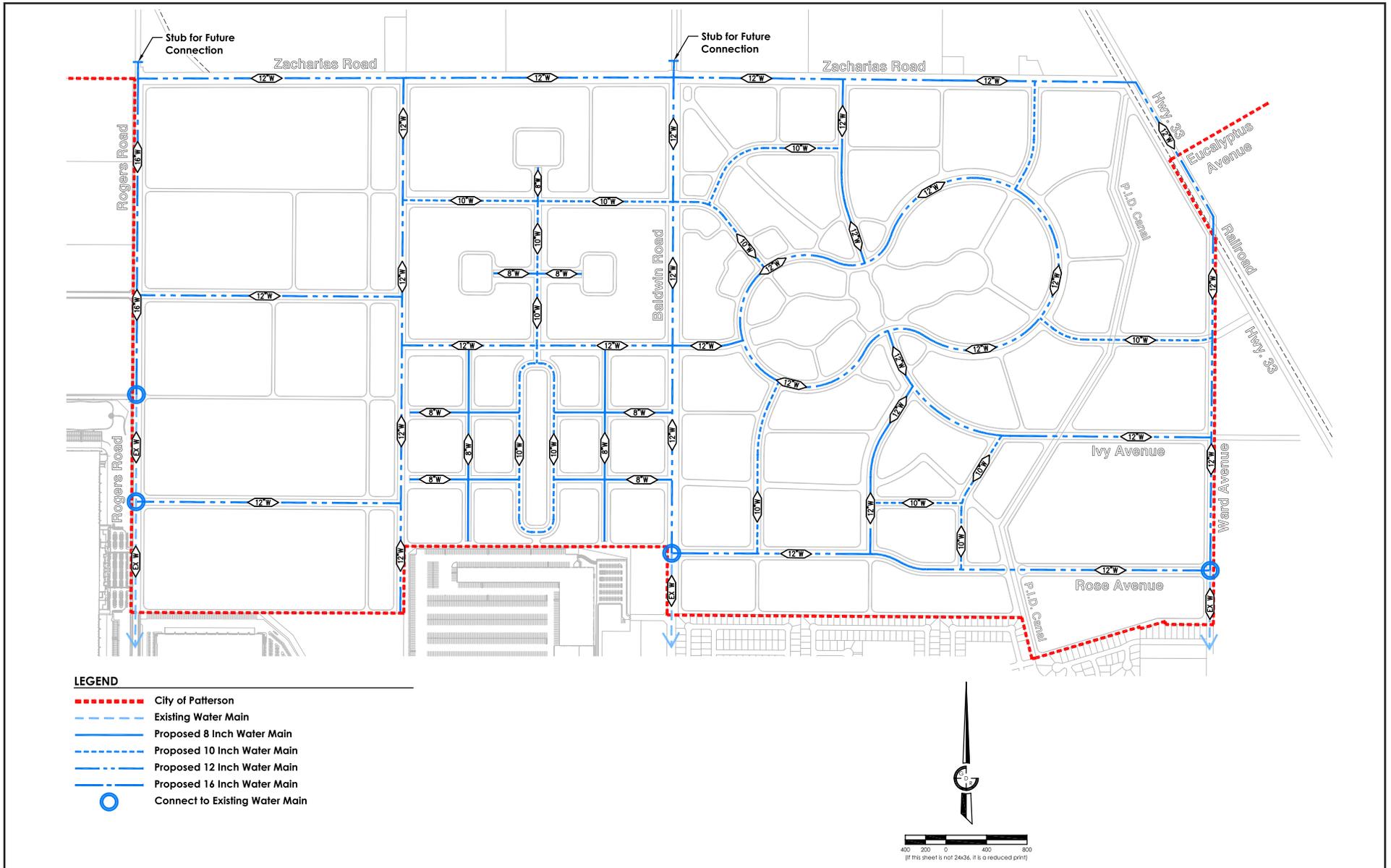
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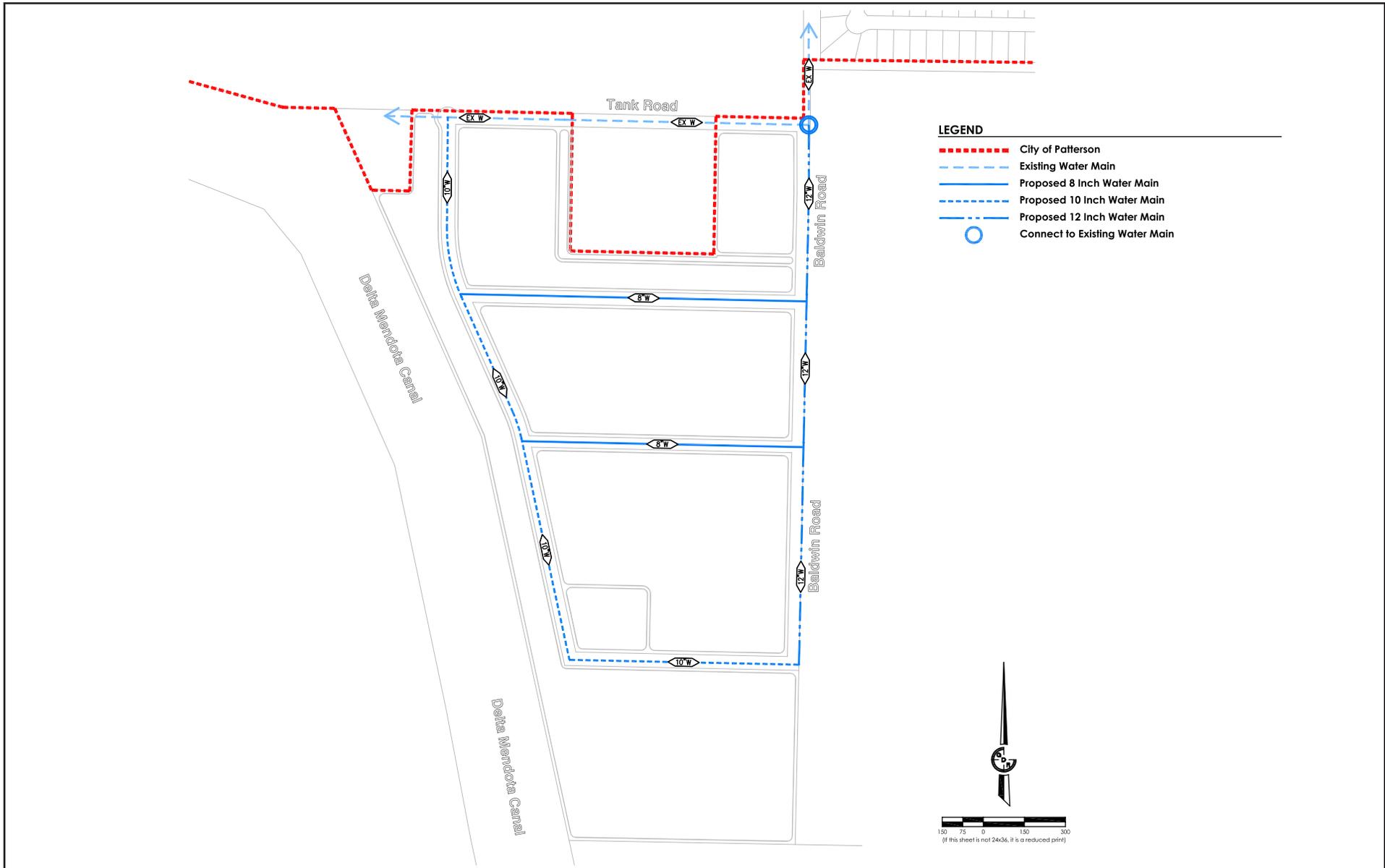


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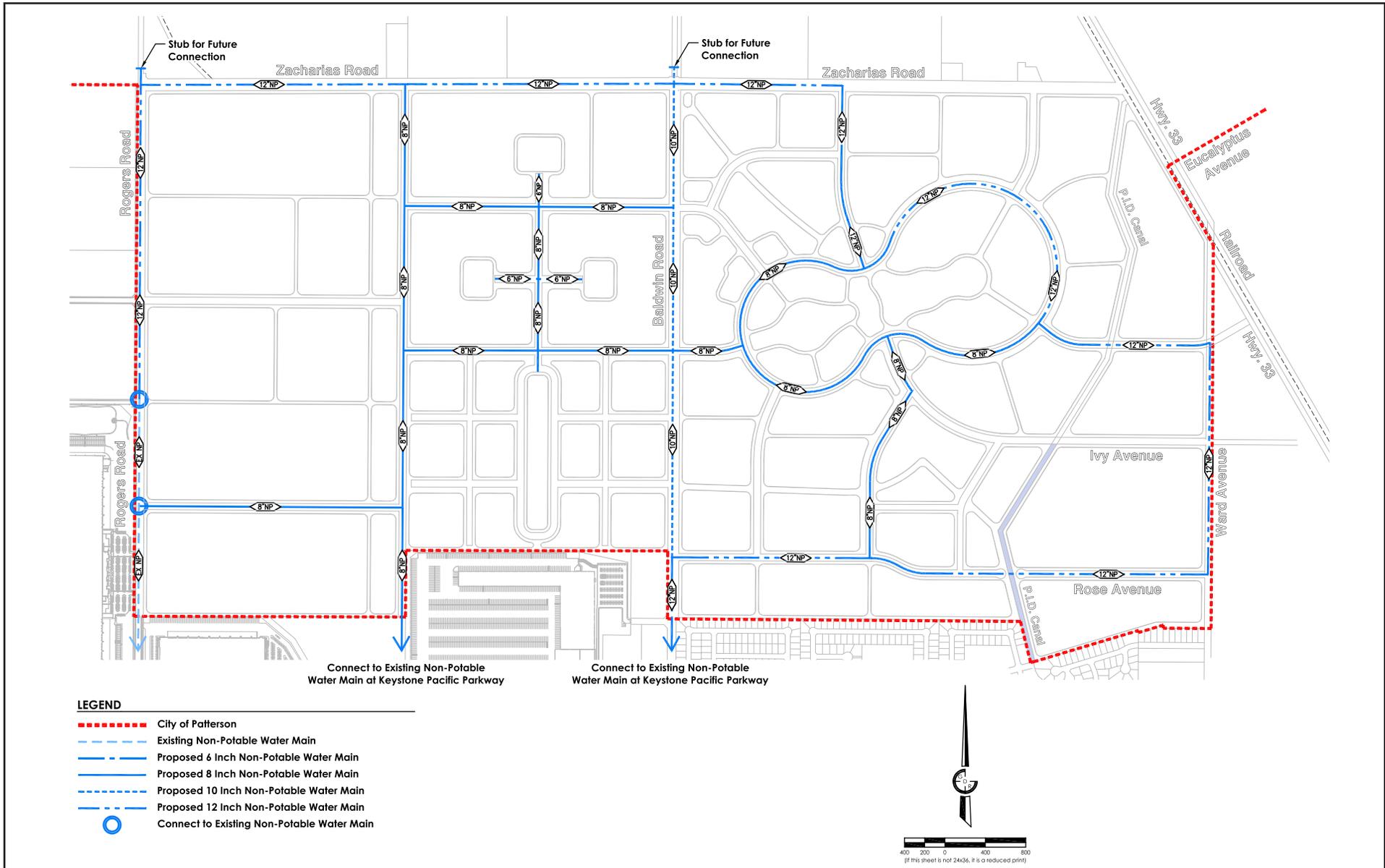


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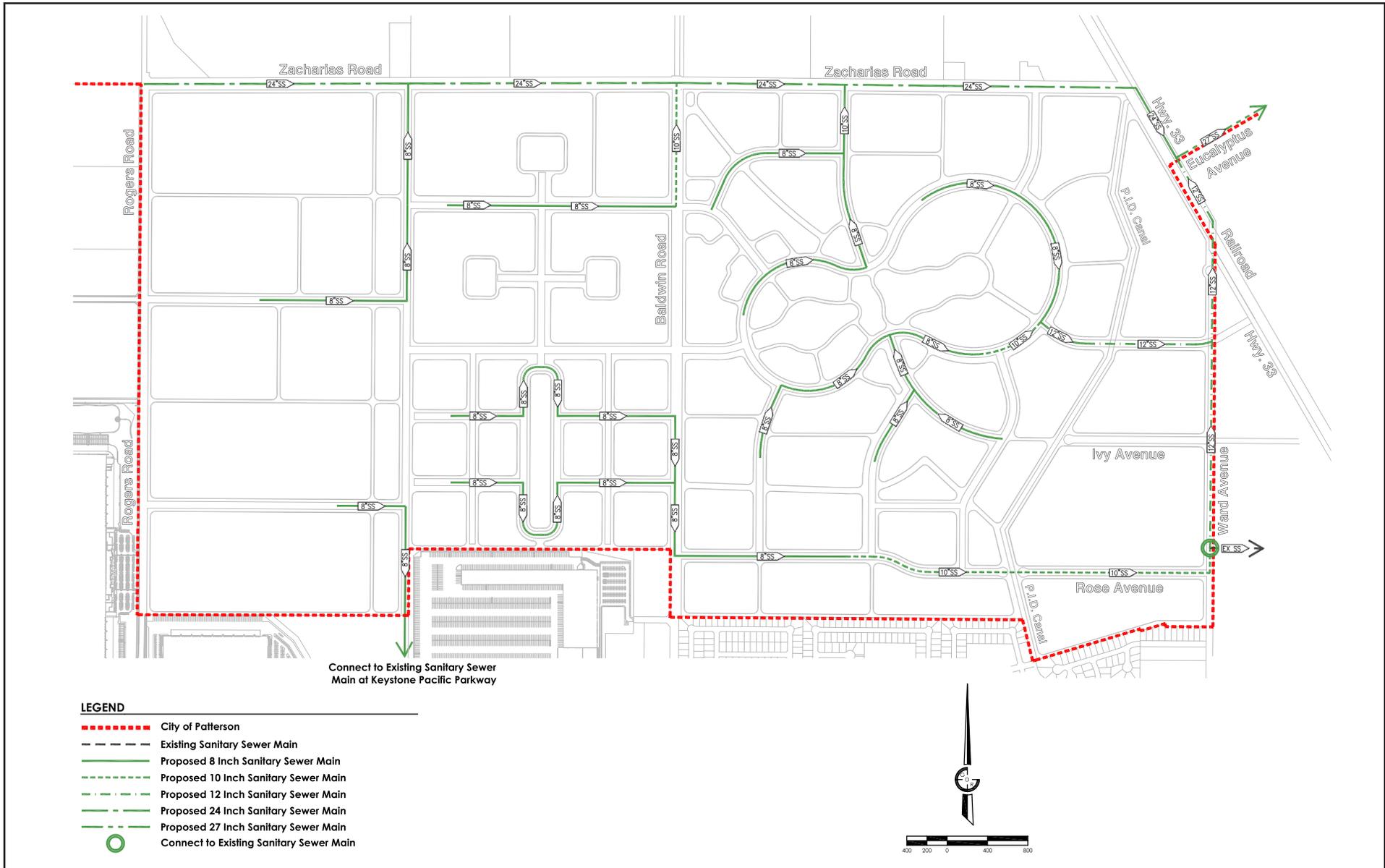
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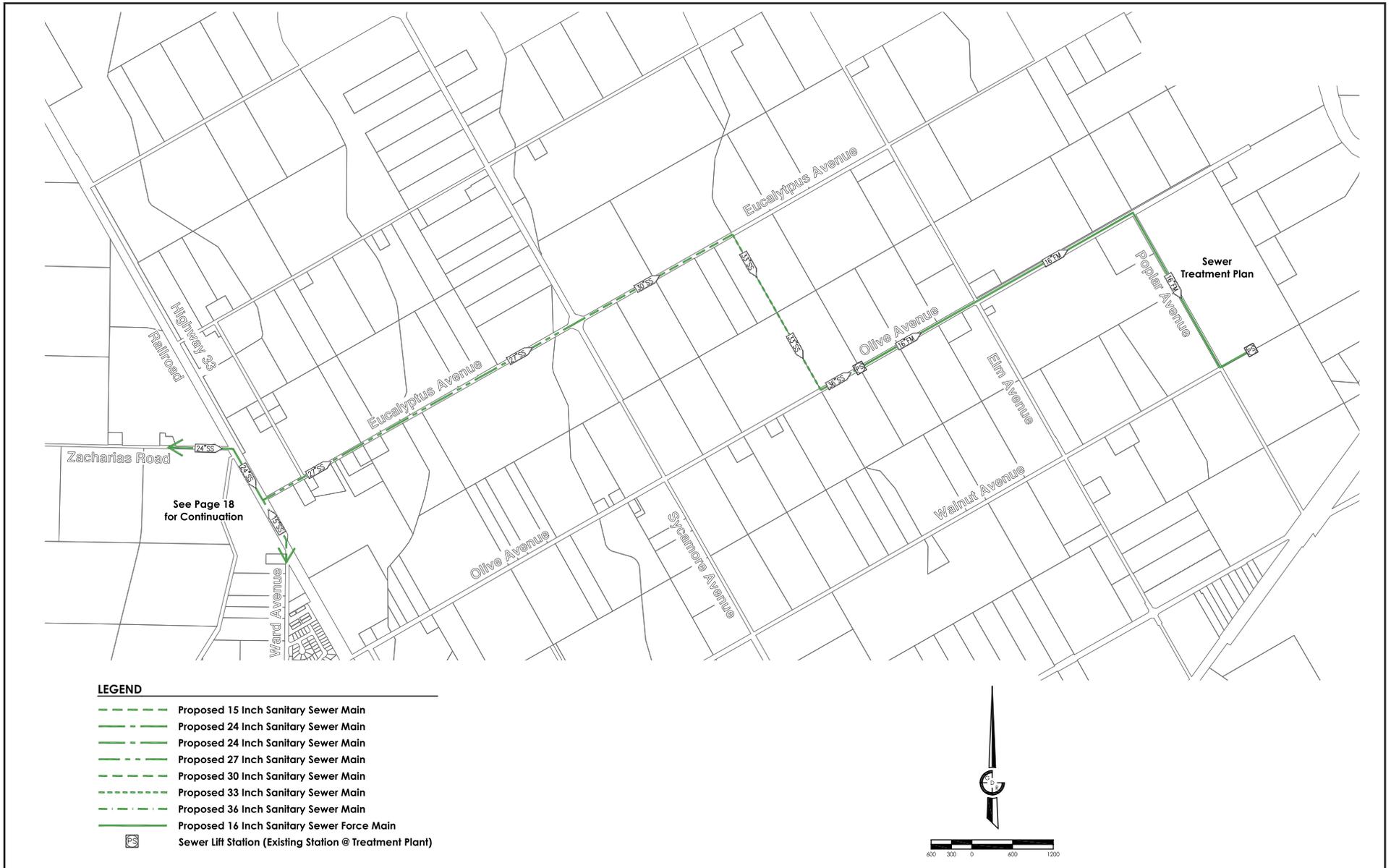
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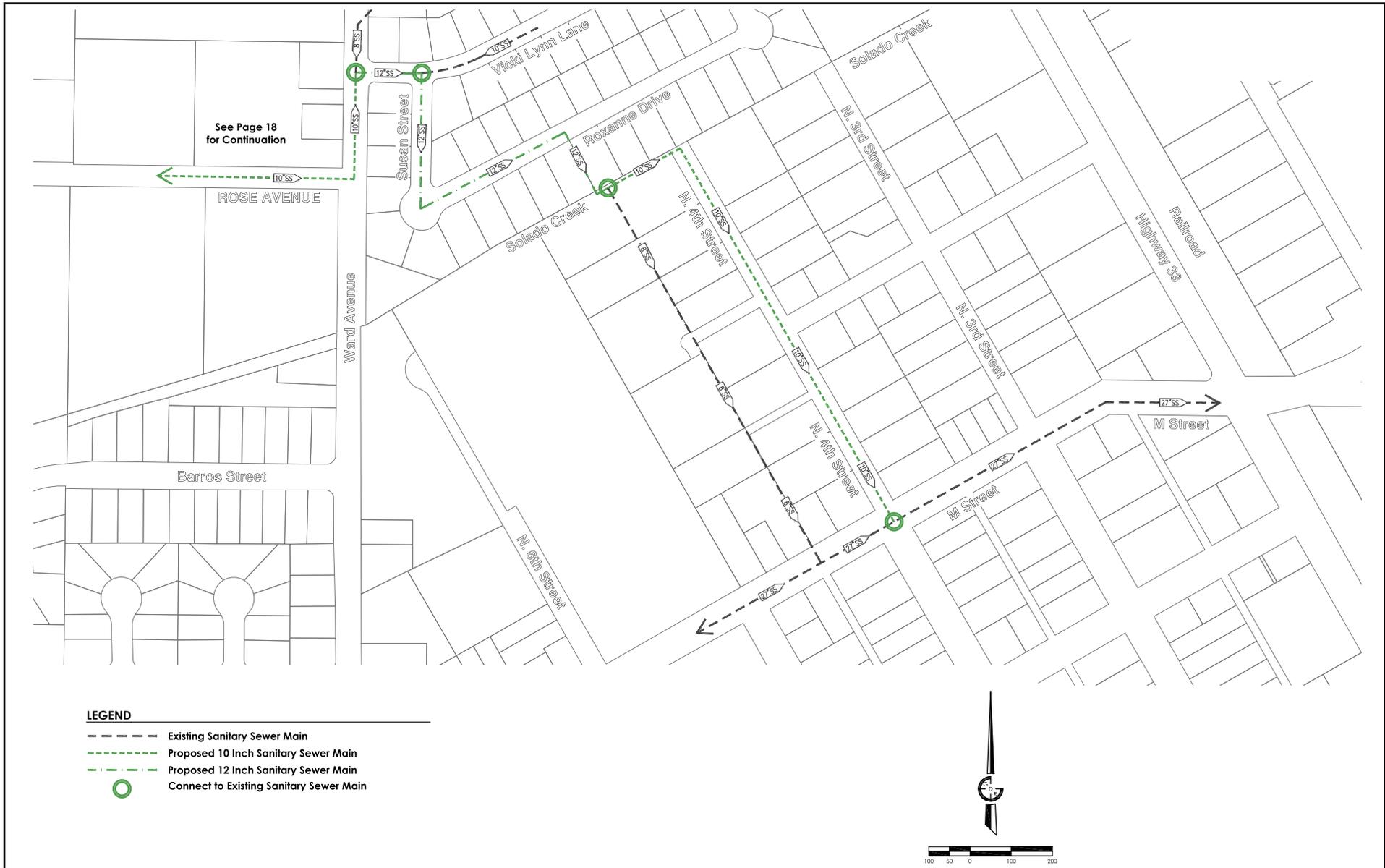
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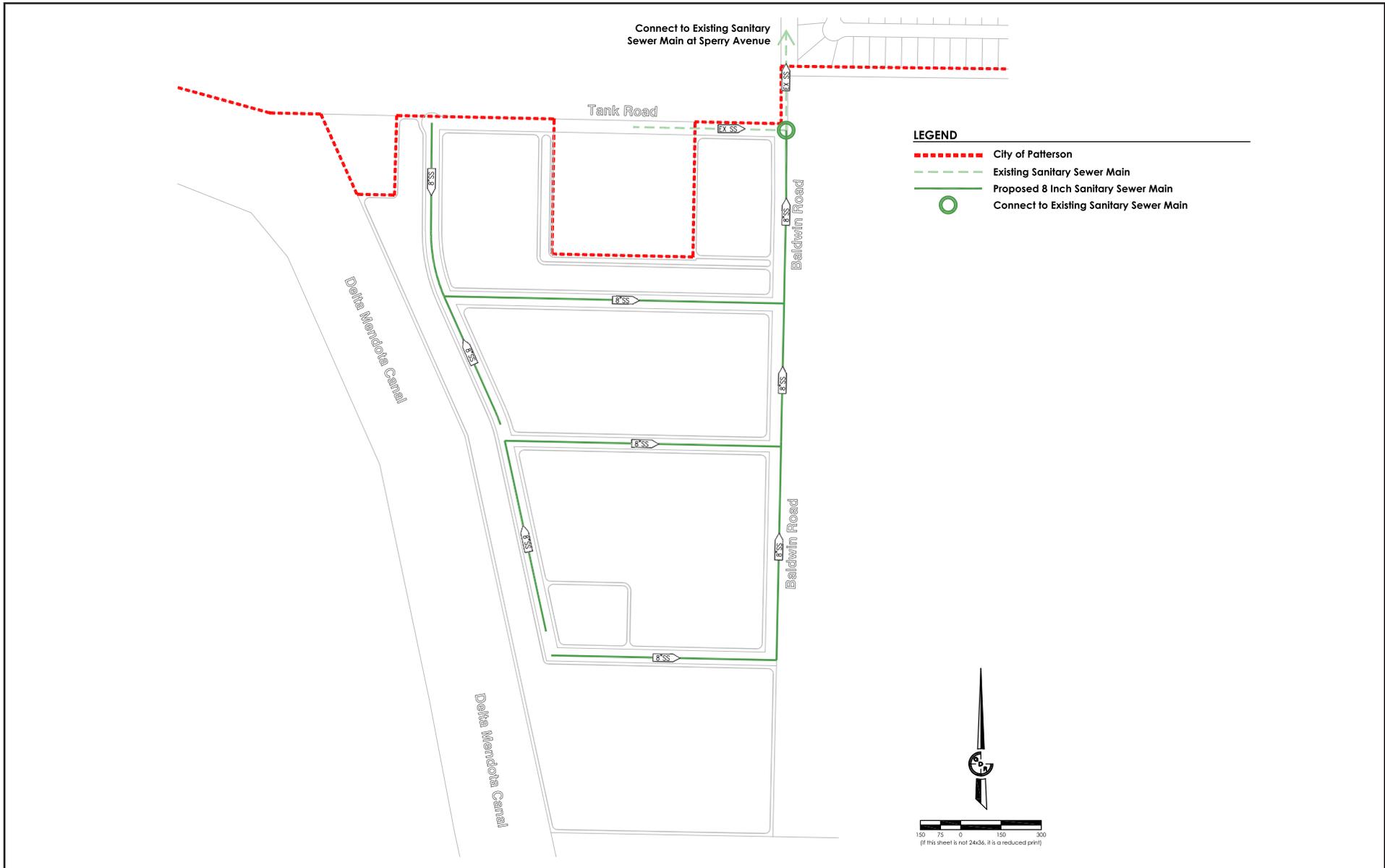
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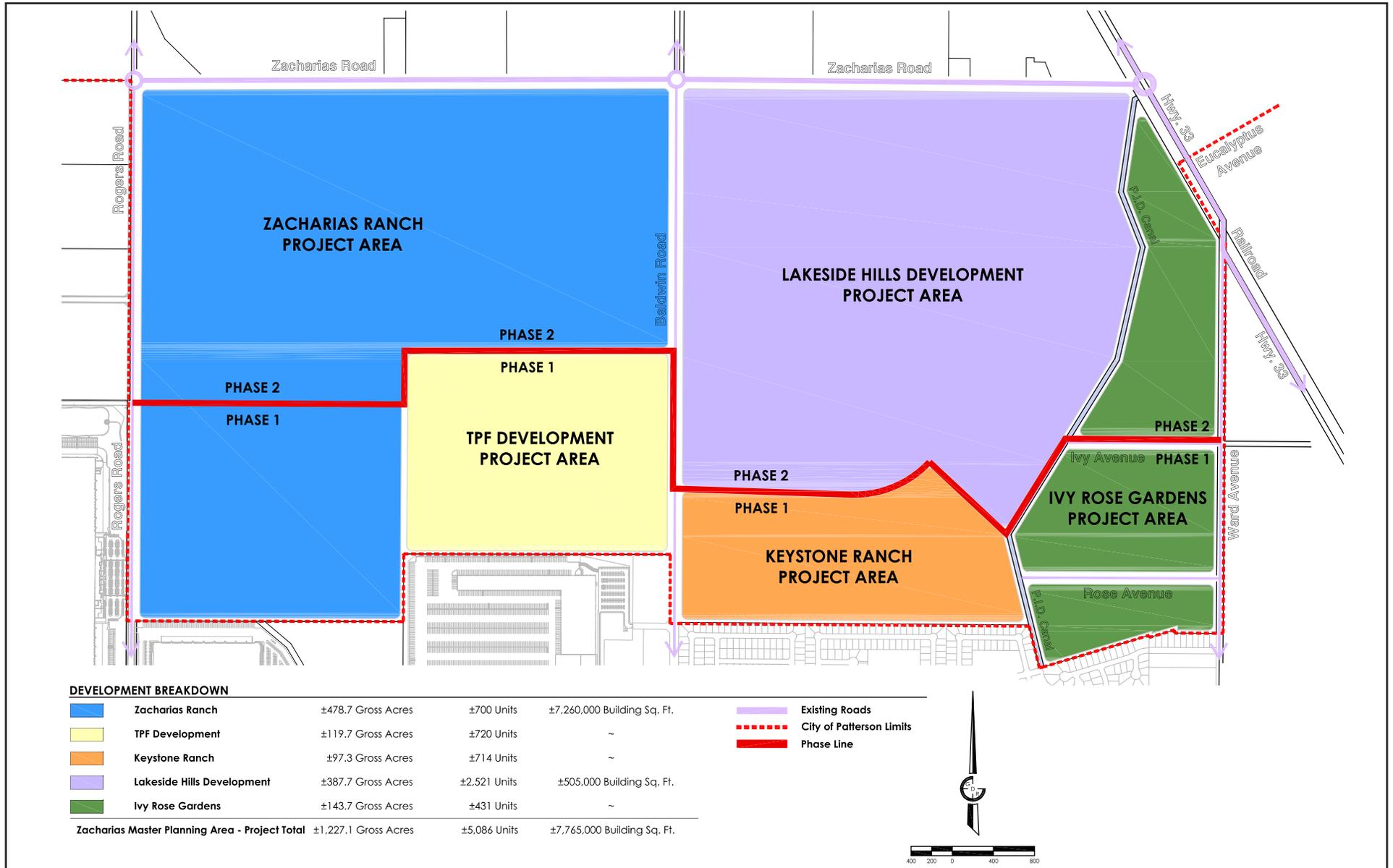
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## SECTION 3: ENVIRONMENTAL IMPACT ANALYSIS

### Organization of Issue Areas

This Draft Environmental Impact Report (Draft EIR) provides analysis of impacts for those environmental topics where it was determined in the Notice of Preparation, or through subsequent analysis that the proposed project would result in “potentially significant impacts.” Sections 3.1 through 3.15 discuss the environmental impacts that may result with approval and implementation of the proposed project.

### Issues Addressed in this EIR

The following environmental issues are addressed in Section 3:

- Aesthetics, Light, and Glare
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources and Tribal Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation
- Utilities and Service Systems

### Level of Significance

Determining the severity of project impacts is fundamental to achieving the objectives of California Environmental Quality Act (CEQA). CEQA Guidelines Section 15091 requires that decision makers mitigate, as completely as is feasible, the significant impacts identified in the Final EIR. If the EIR identifies any significant unmitigated impacts, CEQA Guidelines Section 15093 requires decision makers in approving a project to adopt a statement of overriding considerations that explains why the benefits of the project outweigh the adverse environmental consequences identified in the EIR.

The level of significance for each impact examined in this Draft EIR was determined by considering the predicted magnitude of the impact against the applicable threshold. Thresholds were developed using criteria from the CEQA Guidelines and checklist; State, federal, and local regulatory schemes; local/regional plans and ordinances; accepted practice; consultation with recognized experts; and other professional opinions.

## Impact Analysis and Mitigation Measure Format

The format adopted in this EIR to present the evaluation of impacts is described and illustrated below.

### Summary Heading of Impact

**Impact AES-1:** An impact summary heading appears immediately preceding the impact description (Summary Heading of Impact in this example). The impact number identifies the section of the report (AES for Aesthetics, Light, and Glare in this example) and the sequential order of the impact (1 in this example) within that section. To the right of the impact number is the impact statement, which identifies the potential impact.

### Impact Analysis

A narrative analysis follows the impact statement.

### Level of Significance Before Mitigation

This section identifies the level of significance of the impact before any mitigation is proposed.

### Mitigation Measures

In some cases, following the impact discussion, reference is made to state and federal regulations and agency policies that would fully or partially mitigate the impact. In addition, policies and programs from applicable local land use plans that partially or fully mitigate the impact may be cited.

Project-specific mitigation measures, beyond those contained in other documents, are set off with a summary heading and described using the format presented below:

**MM AES-1** Project-specific mitigation is identified that would reduce the impact to the lowest degree feasible. The mitigation number links the particular mitigation to the impact it is associated with (AES-1 in this example); mitigation measures are numbered sequentially.

### Level of Significance After Mitigation

This section identifies the resulting level of significance of the impact following mitigation.

Abbreviations used in the mitigation measure numbering are:

Code	Environmental Issue
AES	Aesthetics, Light, and Glare
AG	Agricultural Resources
AIR	Air Quality
BIO	Biological Resources

Code	Environmental Issue
CUL	Cultural Resources and Tribal Cultural Resources
GEO	Geology, Soils, and Seismicity
GHG	Greenhouse Gas Emissions and Energy
HAZ	Hazards and Hazardous Materials
HYD	Hydrology and Water Quality
LU	Land Use
NOI	Noise
POP	Population and Housing
PSR	Public Services and Recreation
TRANS	Transportation
US	Utilities and Service Systems

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## 3.1 - Aesthetics, Light, and Glare

### 3.1.1 - Introduction

This section describes the existing aesthetics, light, and glare setting and potential effects from project implementation on visual resources and the site and its surroundings. Descriptions and analysis in this section are based reconnaissance by FirstCarbon Solutions (FCS) and review of the Baldwin Master Plan, Zacharias on-site Master Plan, and the City of Patterson General Plan.

### 3.1.2 - Environmental Setting

#### Regional Context

Patterson, population 23,764, is located on the west side of the San Joaquin Valley in Stanislaus County at the foot of the Diablo Range. Patterson has historically been an agricultural community and is known as the “Apricot Capital of the World” due to the approximately 3,850 acres of apricot orchards located in the surrounding area. The city is centered around Plaza Circle, with a radial/spoke network of roads radiating outward. Mission architecture, apricots, and palm trees are aesthetic features visible throughout the city. Interstate 5 (I-5) and the California Aqueduct form the western edge of Patterson.

Patterson has experienced substantial residential and non-residential development in the past two decades as the population has increased by more than 12,000 and employment has increased by 6,000. The City of Patterson General Plan envisions substantial growth between the freeway and the San Joaquin River, with an ultimate buildout population of approximately 60,000 and employment of 32,196.

#### Visual Character

##### **Zacharias Master Plan**

###### *West of Baldwin Road*

The Master Plan area contains agricultural land (orchards and row crops). A cluster of residential and agricultural buildings is present along Baldwin Avenue. Lateral Six South, a West Stanislaus Irrigation District (WSID) canal, runs south-to-north near Rogers Road; refer to Exhibit 2-3.

Rogers Road forms the western boundary of the Master Plan area. Zacharias Road forms the northern of the Master Plan area. The Keystone Pacific Business Park forms the southern boundary.

###### *East of Baldwin Road*

The Master Plan area contains agricultural land (row crops) west of the Patterson Irrigation District (PID) Lateral M canal and the “Ranchette Triangle” residential area on the east side. WSID Lateral Five South, an irrigation canal, runs south-to-north parallel to Baldwin Road; refer to Exhibit 2-3.

The approximately 143.7-acre Ranchette Triangle consists of 31 parcels, 24 of which support a residence. Of the 24 parcels with a residence, 15 of them are residential only (most of which are 1 acre or less). The largest parcels (4 acres or more) support most of the agricultural acreage.

Zacharias Road forms the northern of the Master Plan area. State Route 33 (SR-33) and Ward Avenue form the western boundary of the Master Plan area. The Patterson Garden residential neighborhood forms the southern boundary.

### ***Baldwin Master Plan***

The Master Plan area contains agricultural land (orchards). A cluster of residential and agricultural buildings is present at the terminus of Baldwin Road; refer to Exhibit 2-3.

The City of Patterson Corporation Yard and a municipal water storage tank is located adjacent to the northern boundary of the Master Plan area. The Delta-Mendota Canal forms the western boundary of the Master Plan area. Baldwin Road forms the eastern boundary of the Master Plan area.

### **State Scenic Highways**

I-5 is classified as an “officially designated” State Scenic Highway within Stanislaus County.

### **Light and Glare**

Light and glare are anthropogenic sources of brightness that have the ability to diminish the quality of daytime or nighttime views or create hazardous conditions for aviation. Examples include exterior lighting, illuminated signage, reflective building materials, and solar panels.

### ***Baldwin Master Plan***

Exterior lighting associated with the cluster of structures are the only sources of light within the Master Plan area.

### ***Zacharias Master Plan***

Exterior lighting associated with structures are the primary sources of light within the Master Plan area. These light sources are concentrated within the Ranchette Triangle.

## **3.1.3 - Regulatory Framework**

### **State**

#### ***California Scenic Highway Program***

The California Scenic Highway Program is intended to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway may be designated as scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view. A scenic corridor is the land generally adjacent to and visible from the highway and is identified using a motorist’s line of vision. The corridor protection program seeks to encourage quality development that does not degrade the scenic value of the corridor.

State Scenic Highways are classified as either “eligible” or “officially designated.” The status of a State Scenic Highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has

been officially designated as a scenic highway. When a city or county nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. The agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program. Minimum requirements for scenic corridor protection include:

- Regulation of land use and density of development
- Detailed land and site planning
- Control of outdoor advertising (including a ban on billboards)
- Careful attention to and control of earthmoving and landscaping
- Careful attention to design and appearance of structures and equipment

## Local

### **City of Patterson**

#### *General Plan*

The City of Patterson General Plan sets forth the following goals and policies relevant to aesthetics, light, and glare:

- **Goal LU-1:** To provide for orderly, well-planned, and balanced growth consistent with the limits imposed by the city's infrastructure and environmental constraints.
- **Policy LU-1.6:** Small town character. The City shall seek to preserve Patterson's traditional small-town qualities and agricultural heritage, while increasing its residential and employment base.
- **Policy LU-1.7:** Preferences for the timing of urban development. In general, the preferred timing of urban development in accordance with the General Plan is as follows:
  - a. First Priority—Vacant or underutilized areas within the current City limits;
  - b. Second Priority—Vacant or underutilized areas within the City's currently adopted sphere of influence;
  - c. Third priority—Vacant or underutilized areas within the General Plan area.
- **Policy LU-1.12:** Status of land prior to urban development. Land within the General Plan Area shall ultimately be developed to urban standards described in Part I – Land Use and Development Standards. Pending connection to City services, such land shall remain in agricultural, open space, or other low intensity uses.
- **Goal CD-1:** To promote the development of a coherent and distinctive physical form and structure that reflects Patterson's small-town qualities and agricultural heritage.
- **Policy CD-1.2:** Enhance distinctiveness. The City shall endeavor to maintain and enhance the distinctiveness and integrity of neighborhoods and districts in Patterson.
- **Policy CD-1.7:** Maintain a distinct urban edge. The City shall seek to maintain a distinct agricultural definition to the urban edge of the city as a means of emphasizing Patterson's small-town qualities and agricultural heritage.

- **Policy CD-1.8:** Green building practices. The City supports the use of green building practices in the planning, design, construction, management, renovation, operations, and demolition of all private buildings and projects, including:
  - Land planning and design techniques that preserve the natural environment and minimize disturbance of the land.
  - Site development to reduce erosion, minimize paved surfaces and runoff and protect vegetation, especially trees.
  - Water conservation indoors and outdoors.
  - Energy efficiency in heating/cooling systems, appliances, lighting and the building envelope.
  - Selection of materials based on recyclability, durability and the amount of energy used to create the material.
  - Waste reduction, reuse and recycling during construction and throughout the life of the project.
  - Other new aspects of green design and construction included in LEED™ or other certification programs.
  - Control nighttime lighting to lower energy use, reduce glare, and prevent illumination of the night sky.
- **Goal CD-3:** To preserve the existing community character and fabric and promote the development of neighborhoods and districts that emphasize pedestrian convenience.
- **Policy CD-3.3:** Pedestrian amenities for commercial areas. New commercial and office development shall promote pedestrian convenience, especially in the downtown.
- **Policy CD-3.4:** Site design. The City shall encourage site design that increases the convenience, safety and comfort of people using transit, walking or cycling.
- **Goal CD-4:** To maintain and enhance the quality of the Patterson’s landscapes and streetscapes.
- **Policy CD-4.1:** Street trees. The City shall endeavor to protect the urban forest created by mature trees in existing developed areas and in newly developing areas.
- **Policy CD-4.2:** Extending the established pattern of landscaping. The City shall require that all new development incorporate the planting of trees and other vegetation that extend the vegetation pattern of older adjacent neighborhoods into new development.
- **Policy CD-4.3:** Boulevard planting. The City shall extend and reinforce major street tree/boulevard plantings to enhance the visual character of special and important streets within Patterson.

#### *Community Design Guidelines*

The Community Design Guidelines are intended to describe, and inform project applicants of, the City’s expectations and preferences for the quality and character of new development. The Planning Commission and City Council consider a project’s consistency with the Community Design Guidelines

during the Design Review process. Both bodies are afforded discretion in determining the applicability of Community Design Guidelines on a case-by-case basis in recognition that not all design criteria may be workable or appropriate for each project.

Key design criteria include:

- Keep Patterson architecturally distinctive, don't let it become "anywhere USA."
  - Maintain a high quality of craftsmanship in development through use of authentic building styles, design elements, and materials.
  - Integrate local cultural and historical themes into building and site design where appropriate.
  - Pay attention to gateways and key corridors to enhance the overall city image.
  - Design for surrounding context and scale of urban form and land uses.
  - Protect the scale and character of older neighborhoods, and cultural context of the city.
  - Require design excellence for infill and redevelopment sites, especially in the downtown area.
  - Minimize the use of "stock" plans and design in corporate and franchise architecture.
  - Encourage traditional neighborhood building and street patterns.
  - Integrate public squares and art that respond to local cultural and historical themes in development.
- Design for the pedestrian scale in appropriate areas.
  - Encourage pedestrian oriented buildings and site planning.
  - Incorporate design elements that respond to environmental conditions such as wind, sun, shade, etc. to protect and shelter pedestrians, and that will provide an enjoyable pedestrian experience.
  - Encourage an appropriate scale of building height to street width in commercial areas. Prohibit or minimize parking between buildings and the street.
- Respect the natural environment by protecting natural resources and integrating the natural environment into building and site planning, where appropriate.
  - Maintain views of the foothills west of the city.
  - Continue streetscape landscaping.
  - Control outdoor lighting to provide necessary security, but not create spillage onto adjacent properties or interfere with views of night skies.

### 3.1.4 - Methodology

FCS evaluated potential project impacts on aesthetics, light, and glare through site reconnaissance and review of applicable plans and policies. FCS personnel visited the Master Plan areas in December

2018 to document the site conditions through photographs and notation. The City of Patterson’s General Plan and Design Guidelines were reviewed to determine applicable policies and design requirements for the proposed project. The assessment of visual and light and glare impacts was largely guided by the standards set forth in the City’s adopted documents, as well as FCS’ experience with these analytical areas.

### 3.1.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist of the CEQA Guidelines, aesthetics impacts resulting from the implementation of the proposed project would be considered significant if the project would:

- a) Have a substantial adverse effect on a scenic vista?
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a State Scenic Highway?
- c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

### 3.1.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

#### Scenic Vistas

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**Impact AES-1: Buildout of the Master Plans would not have a substantial adverse effect on a scenic vista.**

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#### ***Impact Analysis***

This impact will assess the potential for the proposed Master Plans to have a substantial adverse effect on a scenic vista.

The City of Patterson Community Design Guidelines identify the maintenance of views of the Diablo Range foothills west of the City as a desired objective. As such, this impact analysis will address impacts views of the foothills as a result of the development of the Master Plan areas.

#### ***Baldwin Master Plan***

The Baldwin Master Plan encompasses 68 acres and would represent the southern-most urbanized portion of Patterson at buildout. Due to its small size and its location to the south of the City Corporation Yard and east of the Delta-Mendota Canal, it would only be visible from areas

immediately adjacent to it. As such, it would not have any ability to affect views of the Diablo Range foothills. Impacts would be less than significant.

### ***Zacharias Master Plan***

The Zacharias Master Plan encompasses more than 1,150 acres and would close a gap between the western Patterson city limits (Arambel Business Park) and the middle of Patterson (Ward Avenue). This area contains agricultural land use activities and provides unobstructed views of the Diablo Range to the west.

The proposed Master Plan contemplates low rise residential, commercial, and school buildings (i.e., less than 35 feet above finished grade), which would have minimal to no impact to views of the Diablo Range. The tallest buildings would be those associated with the proposed light industrial area along Rogers Road. These would be as tall as 45 feet above finished grade. However, the light industrial area would be setback from the nearest residential areas by stormwater basins. Thus, when the building height limit and setbacks are accounted for, these structures would not have impacts on views of the Diablo Range from existing developed parts of Patterson. Impacts would be less than significant.

### ***Level of Significance Before Mitigation***

Less than significant impact.

### ***Mitigation Measures***

No mitigation is necessary.

### ***Level of Significance After Mitigation***

Less than significant impact.

## **Scenic Highways**

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<b>Impact AES-2:</b>	<b>Buildout of the Master Plans would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway.</b>
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### ***Impact Analysis***

This impact will assess the potential for the proposed Master Plans to have a substantial adverse effect on a State Scenic Highway.

### ***Baldwin Master Plan***

The Baldwin Master Plan is not visible from I-5 due to the presence of orchards at a higher elevation on the west side of the Delta-Mendota Canal. The residential uses contemplated by the Master Plan would be low rise residential and would not be visible from the freeway. Lastly, no freeway-oriented signage is proposed by the Master Plan. As such, it would not have any ability to affect views from a state scenic highway. Impacts would be less than significant.

### **Zacharias Master Plan**

The Zacharias Master Plan is barely visible from I-5 due its distance from the freeway. The existing buildings in the Arambel Business Park and West Patterson Business Park screen portions of the Master Plan area from view.

Buildout of the Master Plan would close a gap between the western Patterson city limits (Arambel Business Park) and the middle of Patterson (Ward Avenue) and would change the visual appearance from agricultural to urban. However, as viewed from the freeway, it would not represent a substantial change in the quality of the I-5 viewshed of the distance from the freeway and intervening Arambel Business Park development, and as such would constitute a small part of the viewshed. The Master Plan would include landscaping that would further screen and soften the appearance of development within this gap. Lastly, no freeway-oriented signage is proposed by the Master Plan. Impacts would be less than significant.

#### **Level of Significance Before Mitigation**

Less than significant impact.

#### **Mitigation Measures**

No mitigation is necessary.

#### **Level of Significance After Mitigation**

Less than significant impact.

### **Visual Character**

---

**Impact AES-3: Buildout of the Master Plans would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.**

---

#### **Impact Analysis**

This impact will assess the potential for the proposed Master Plans to substantially degrade the existing visual character or quality of the site and its surroundings.

### **Baldwin Master Plan**

The Baldwin Master Plan encompasses 68 acres and would represent the southern-most urbanized portion of Patterson at buildout.

The Master Plan would guide the development of 305 dwelling units, parks, and infrastructure within this area. The Master Plan sets forth a ‘Modern Mission’ design theme to promote a cohesive and unique visual appearance that reflects Patterson’s heritage.

Buildout of the Master Plan would represent an irreversible change to the visual character of the Master Plan area. However, the Master Plan area is within the City of Patterson General Plan planning areas and is designated for Low Density Residential development. Moreover, the General Plan envisions the City of Patterson growing to more than 60,000 residents and, thus, the proposed Master Plan represents planned growth that is consistent with the blueprint vision for the City.

Furthermore, due to its small size and its location to the south of the City Corporation Yard and east of the Delta-Mendota Canal, the Master Plan area would only be visible from areas immediately adjacent to it. As such, it would not have any ability to substantially degrade the existing visual character or quality of the site and its surroundings. Impacts would be less than significant.

### ***Zacharias Master Plan***

The Zacharias Master Plan encompasses more than 1,150 acres and would close a gap between the western Patterson city limits (Arambel Business Park) and the middle of Patterson (Ward Avenue). This area contains agricultural land use activities.

The Master Plan would guide the development of 4,781 dwelling units, 7.7 million square feet of non-residential uses, two schools, a dual use flood control basin / sports facility, parks, and infrastructure within this area. The Master Plan sets forth a 'Modern Mission' design theme to promote a cohesive and unique visual appearance that reflects Patterson's heritage.

Buildout of the Master Plan would represent an irreversible change to the visual character of the Master Plan area. However, the Master Plan area is within the City of Patterson General Plan planning areas and is designated for Low Density Residential development. Moreover, the General Plan envisions the City of Patterson growing to more than 60,000 residents and, thus, the proposed Master Plan represents planned growth that is consistent with the blueprint vision for the City.

Furthermore, the Master Plan contemplates residential uses where the Master Plan area interfaces with existing residential uses. Likewise, the Master Plan contemplates non-residential uses where the Master Plan area interfaces with existing non-residential uses. Stormwater basins would be located between residential and non-residential uses to provide a transitional buffer. Collectively, these measures would promote land use compatibility and would also advance visual compatibility.

As such, it would not have any ability to substantially degrade the existing visual character or quality of the site and its surroundings. Impacts would be less than significant.

### ***Level of Significance Before Mitigation***

Less than significant impact.

### ***Mitigation Measures***

No mitigation is necessary.

### ***Level of Significance After Mitigation***

Less than significant impact.

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## Light and Glare

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**Impact AES-4:** Buildout of the Master Plans would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

---

### ***Impact Analysis***

This impact will assess the potential for the proposed Master Plans to create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

### ***Baldwin Master Plan***

The Baldwin Master Plan encompasses 68 acres and would represent the southern-most urbanized portion of Patterson at buildout. Buildout of the Master Plan would add new sources of exterior light and glare such as street lights and building-mounted lights to the ambient nighttime environment. Due to its small size and its location to the south of the City Corporation Yard and east of the Delta-Mendota Canal, light and glare emitted from this Master Plan area would only be visible from areas immediately adjacent to it. Moreover, design features would shield, recess, or direct exterior lighting downward, which would minimize the potential for adverse nighttime light and glare impacts. Impacts would be less than significant.

### ***Zacharias Master Plan***

The Zacharias Master Plan encompasses more than 1,150 acres and would close a gap between the western Patterson city limits (Arambel Business Park) and the middle of Patterson (Ward Avenue).

Buildout of the Master Plan would add new sources of exterior light and glare such as street lights, building-mounted lights, and illuminated signage to the ambient nighttime environment. To minimize, if not avoid adverse light and glare impacts, the Master Plan contemplates residential uses where the Master Plan area interfaces with existing residential uses. Likewise, the Master Plan contemplates non-residential uses where the Master Plan area interfaces with existing non-residential uses. Stormwater basins would be located between residential and non-residential uses to provide a transitional buffer. Collectively, these measures would promote land use compatibility and would also advance light and glare compatibility.

Moreover, design features would shield, recess, or direct exterior lighting downward, which would minimize the potential for adverse nighttime light and glare impacts. Impacts would be less than significant.

### ***Level of Significance Before Mitigation***

Less than significant impact.

### ***Mitigation Measures***

No mitigation is necessary.

### ***Level of Significance After Mitigation***

Less than significant impact.

## 3.2 - Agricultural Resources

### 3.2.1 - Introduction

This section describes the existing agricultural resources and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information provided by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) and the United States Department of Agriculture. The Land Evaluation and Site Assessment (LESA) Model is provided in this EIR as Appendix B.

### 3.2.2 - Environmental Setting

#### Regional Setting

Agriculture is a primary economic activity in Stanislaus County. The California Department of Conservation FMMP indicated approximately 44 percent of the County’s land area was in cultivated agricultural production in 2018. An overview of local agricultural activities is as follows.

#### Agricultural Economy

Stanislaus County has consistently maintained its position as the fifth or sixth largest agricultural economy in the State during the past 6 years as measured by production value. Between 2013 and 2018, the production value of Stanislaus County crops ranged from \$3.26 billion to \$4.40 billion. Table 3.2-1 summarizes agricultural production in the County between 2013 and 2018.

**Table 3.2-1: Stanislaus County Agricultural Economy (2013-2018)**

Year	\$ Value (billions)	Rank in State
2018	3.57	5
2017	3.65	5
2016	3.26	6
2015	3.88	5
2014	4.40	6
2013	3.66	6

Source: United States Department of Agriculture, 2013—2020.

Table 3.2-2 summarizes the top 10 agricultural commodities produced in Stanislaus County by dollar value in 2018. Almonds is the leading commodity, with a production value of \$1,107.

**Table 3.2-2: Stanislaus County Crop Summary (2018)**

Rank	Commodity	\$ Production Value (millions)
1	Almonds	1,107
2	Milk	636

Rank	Commodity	\$ Production Value (millions)
3	Chickens	276
4	Cattle and Calves	237
5	Nursery Fruit, Nut Trees, and Vines	170
6	Silage	136
7	Walnuts	103
8	Pollination, Almond	76
9	Turkeys	64
10	Peaches	56

Notes:  
Production values rounded to nearest million  
Source: Stanislaus County Agricultural Commissioner, 2018.

### Farmland Classifications

The California Department of Conservation FMMP classifies farmland based on agricultural productivity characteristics, as follows:

- **Prime Farmland:** Land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. These lands have the soil quality, growing season, and moisture supply needed to produce sustained high yields.
- **Unique Farmland:** Land 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 are found in some climatic zones in California.
- **Farmland of Statewide Importance:** Land similar to Prime Farmland, but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.
- **Farmland of Local Importance:** Land of importance in the local agricultural economy, as determined by each county’s Board of Supervisors and a local advisory committee.

Table 3.2-3 summarizes farmland acreage in Stanislaus County between 2008 and 2018. As shown in the table, farmland acreage increased by more than 28,000 acres between 2008 and 2018. During this same period, the County’s population increased by more than 40,000 residents, indicating that urban development has not impaired local agriculture.

**Table 3.2-3: Stanislaus County Farmland Summary**

Classification	Acres					
	2008	2010	2012	2014 <sup>1</sup>	2016	2018
Prime Farmland	256,166	253,434	251,722	252,700	249,967	250,420
Unique Farmland	81,367	31,475	95,187	105,630	116,210	121,930

Classification	Acres					
	2008	2010	2012	2014 <sup>1</sup>	2016	2018
Farmland of Statewide Importance	31,448	87,524	31,763	32,182	33,172	33,042
Farmland of Local Importance	31,160	31,366	31,332	28,144	26,029	23,058
<b>Farmland Total</b>	<b>400,141</b>	<b>403,799</b>	<b>410,004</b>	<b>418,656</b>	<b>425,378</b>	<b>428,450</b>

Notes:  
<sup>1</sup> Conversion of geospatial data to North American 1983 (NAD 83) led to minor changes in total FMMMP acreage beginning in 2014  
 Source: California Department of Conservation, 2008—2018.

### Land Classifications

As shown in Exhibit 3.2-1, the Zacharias Master Plan area is mapped as containing 973.01 acres of Prime Farmland, 60.40 acres of Unique Farmland, and 151.49 acres of Farmland of Statewide Importance, for a total of 1,184.9 acres of Important Farmland. The Baldwin Master Plan is mapped as containing 61.22 acres of Prime Farmland and 0.26 acres of Farmland of Local Importance, for a total of 61.48 acres of Important Farmland.

### Soils

Exhibit 3.2-2 provides the soil mapping for the Master Plan areas. Table 3.2-4 summarizes the soils that comprise the project site.

**Table 3.2-4: Soils Summary**

Area	Number—Soil Unit	Acres	Percent of Area	Land Capability Classification	Storie Index Rating
Baldwin Master Plan	125 – Vernalis clay loam, 0 to 2 percent slopes	16.6	25%	I	95
	140 – Zacharias clay loam, 0 to 2 percent slopes, rarely flooded	48.7	75%	I	95
Zacharias Master Plan	100 – Capay clay, 0 to 2 percent slopes	261.9	22%	IIs	35
	102 – Capay clay, loamy substratum, 0 to 2 percent slopes	51.8	4%	IIs	35
	106 – Capay clay, 0 to 2 percent slopes, rarely flooded	84.6	7%	IIs	35
	126 – Vernalis-Zacharias complex clay loam, 0 to 2 percent slopes	95.3	8%	I	81
	127 – Vernalis loam, 0 to 2 percent slopes, rarely flooded	293.4	24%	I	85
	128 – Water	60.4	6%	—	—
	147 – Zacharias gravelly clay loam, 0 to 2 percent slopes, rarely flooded	186.6	15%	IIw	60

Area	Number—Soil Unit	Acres	Percent of Area	Land Capability Classification	Storie Index Rating
	210 – Cortina gravelly sandy loam, 0 to 5 percent slopes, rarely flooded	151.5	12%	III <sub>s</sub>	48
	271 – Elsalado loam, 0 to 2 percent slopes, rarely flooded	27.2	2%	I	85

Notes:  
Percentages rounded to the nearest integer  
Source: United States Department of Agriculture, 2013—2016.

### Williamson Act Contracts

As further discussed in the Regulatory Framework, the California Land Conservation Act, also known as the Williamson Act, is a voluntary program that allows agricultural property owners to have their property assessed on the basis of its agricultural production rather than at the current market value.

There are six active Williamson Act contracts on properties within the Ranchette Triangle portion of the Zacharias Master Plan. There are no active Williamson Act contracts within the Baldwin Master Plan.

### Surrounding Agricultural Land Uses

Exhibit 3.2-3a and Exhibit 3.2-3b identifies the Zone of Influence around the Zacharias and Baldwin Master Plan areas, respectively. The Zone of Influence encompasses all parcels within 0.25-miles of the Master Plan boundaries and is intended to provide context about the surrounding land uses.

As shown in Exhibit 3.2-3a, the Zacharias Master Plan is surrounded by 886 acres of Prime Farmland, 118 acres of Unique Farmland, and 60 acres of Farmland of Statewide Importance. As shown in Exhibit 3.2-3b, the Baldwin Master Plan area is surrounded by 513 acres of Prime Farmland.

## 3.2.3 - Regulatory Framework

### State

#### ***Farmland Mapping and Monitoring Program***

In 1975, The Soil Conservation Service (since renamed Natural Resources Conservation Service [NRCS]) of the United States Department of Agriculture began farmland mapping efforts across the nation, with the goal of producing agricultural resource maps based on soil quality and land use. As part of this nationwide agricultural land use mapping effort, the NRCS developed a series of definitions known as Land Inventory Monitoring criteria. The Land Inventory Monitoring criteria classify the land’s suitability for agricultural production; suitability includes both the physical and chemical characteristics of soils and the actual land use. In the early 1980s, to continue these farmland mapping efforts in California, the FMMP was created within the Department of Conservation. The FMMP carries on these mapping activities on a continuing basis and with a greater level of detail; this is accomplished by using a modified Land Inventory Monitoring criteria. These criteria utilize the NRCS and Storie Index Rating Systems, but also consider physical conditions such as dependable

water supply for agricultural production, soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The FMMP prepares Important Farmland maps for all counties in California, using the modified Land Inventory Monitoring criteria as well as current land use information.

### **Williamson Act**

In 1965, the California Land Conservation Act, also known as the Williamson Act, was adopted. This voluntary program allows property owners to have their property assessed for its agricultural production rather than at the current market value. The property owner is thus relieved of having to pay higher property taxes, as long as the land remains in agricultural production. The purpose of the Act is to encourage property owners to continue to farm their land, and to prevent the premature conversion of farmland to urban uses. Participation requires that the area consist of 100 contiguous acres of agricultural land under one or more ownerships.

Upon approval of an application by the Board of Supervisors of the county where the land is located in, the agricultural preserve is established, and the land within the preserve is restricted to agricultural and compatible uses for at least 10 years. Williamson Act contracts are automatically renewed for an additional 1-year period, unless the property owner applies for non-renewal or early cancellation. The Williamson Act also contains provisions for cancellation of contracts under certain circumstances.

## **Local**

### **City of Patterson**

#### *General Plan*

The City of Patterson General Plan sets forth the following goal and policies relevant to agricultural resources:

- **Goal NR-2:** To protect and preserve local agricultural lands and to prevent their premature conversion to urban uses.
- **Policy NR-2.1:** Agricultural land preservation. Undeveloped lands that are State designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland shall be preserved, to the greatest extent feasible, for open space or agricultural use.
- **Policy NR-2.4:** Support for County agricultural land preservation. The City shall support strategies adopted by Stanislaus County aimed at maintaining agricultural lands in viable farming units in areas not designated for urban development.
- **Policy NR-2.5:** Regional farmland preservation. The City shall continue to work with the County and other jurisdictions to implement conservation plans that preserve prime farmland.
- **Policy NR-2.9:** Williamson Act. The City shall allow the cancellation of Williamson Act contracts only if the City Council finds that cancellation is consistent with State law.
- **Policy NR-2.11:** Soil conservation. The City shall encourage soil conservation practices as recommended by the Natural Resources Conservation Service.

## County of Stanislaus

### General Plan

The Stanislaus County General Plan Agriculture Element sets forth two approaches for avoiding, minimizing, or offsetting impacts on agricultural resources.

- **Farmland Mitigation Program:** This program requires new residential development on lands designated “Agriculture” by the Stanislaus County General Plan in unincorporated Stanislaus County to permanently protect farmland at a 1:1 ratio.
- **Buffers and Setbacks:** New or expanded uses within or adjacent to the A-2 (General Agriculture) zoning district must incorporate a minimum 150-foot-wide buffer setback. Permitted uses within the setback may include public roadways, utilities, drainage facilities, rivers and adjacent riparian areas, landscaping, parking lots, and similar low-people-intensive uses. Permitted uses may also include non-agricultural uses adjoining or surrounding a project site (including but not limited to legal, non-conforming uses and home sites) that are of a permanent nature and are not likely to be returned to agriculture. Landscaping within a buffer setback area shall be designed to exclude turf areas that could induce activities and add to overall maintenance costs and water usage.

### Local Agency Formation Commission

Stanislaus Local Agency Formation Commission (LAFCo) oversees jurisdictional boundaries with Stanislaus County. LAFCo’s responsibilities are largely defined by the Cortese-Knox-Hertzberg Reorganization Act of 2000 and include discretionary review and approval authority for annexations, sphere of influence adjustments, and similar actions. Although LAFCo does not directly regulate agricultural land use activities, the Cortese-Knox-Hertzberg Reorganization Act allows the agency to consider the potential presence of such activities as a factor in the decision-making process.

## 3.2.4 - Methodology

FCS evaluated the proposed project’s impacts on Important Farmland through the use of the Land Evaluation and Site Assessment (LESA) model issued by the California Department of Conservation. The LESA model provides analytical approach for rating the relative quality of land resources based upon specific measurable features. Factors considered by the LESA model includes soils, site acreage, water availability, and surrounding land uses. The LESA model worksheets are provided in Appendix B.

## 3.2.5 - Thresholds of Significance

According to CEQA Guidelines Appendix G, to determine whether impacts to agricultural resources are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

- c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- d) Result in the loss of forest land or conversion of forest land to non-forest use?
- e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

### 3.2.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

#### Important Farmland

**Impact AG-1:** The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

#### Impact Analysis

This impact will evaluate the potential for the proposed project to convert Important Farmland to non-agricultural use.

#### Baldwin Master Plan

As shown in Exhibit 3.2-1, the Baldwin Master Plan area is mapped as containing 61.22 acres of Prime Farmland and 0.26 acre of Farmland of Local Importance, for a total of 61.48 acres of Important Farmland. To assess the significant of this conversion, FCS prepared a LESA model for the Baldwin Master Plan. The results are summarized in Table 3.2-5.

**Table 3.2-5: Baldwin Master Plan Land Evaluation and Site Assessment Model Scoring Summary**

Category	Factor	Points	Factor Weigh	Weighted Points
Land Evaluation	Land Capability Class	100	0.25	25.0
	Storie Index	84.5	0.25	21.1
	<b>Subtotal</b>		<b>0.50</b>	<b>46.1</b>
Site Assessment	Project Size	90	0.15	13.5
	Water Resources Availability	80	0.15	12.0
	Surrounding Agricultural Lands	20	0.15	3.0
	Surrounding Protected Resource Lands	20	0.05	1.0
	<b>Subtotal</b>		<b>0.50</b>	<b>29.5</b>

Category	Factor	Points	Factor Weigh	Weighted Points
<b>Grand Total</b>				<b>75.6</b>
Notes: LESA scoring sheet provided in Appendix C. Source: FCS 2020.				

As shown in Table 3.2-5, the Baldwin Master Plan area has a total score of 75.6. The LESA model indicates that scores between 60 to 79 points are considered significant only if the either the Land Evaluation subtotal or the Site Assessment subtotal are less than 20. In this case, the subtotals are greater than 20; therefore, the proposed Baldwin Master Plan would be considered to have a significant impact in terms of converting Important Farmland to non-agricultural use.

The City of Patterson General Plan designates the Master Plan area as “Low Density Residential.” This designation signifies that the City has contemplated the conversion of this agricultural land to urban uses over the planning horizon of the General Plan and, therefore, does not consider the project area as a preferred location for permanent agricultural uses. The EIR for the City of Patterson General Plan found that conversion of prime agricultural, including the project site, to urban uses to be a significant and unavoidable impact. As part of adopting the General Plan, the Patterson City Council adopted findings of fact and a statement of overriding consideration that indicated urban development was of greater benefit to the community than preserving agricultural land within city limits. Although conversion of the project area to urban uses would reflect the land use assumptions contained in the City of Patterson General Plan, farmland is an important resource to the region, and direct conversion of Important Farmland to urban land uses would be considered a significant impact under LESA methodology.

The City of Patterson, the County of Stanislaus, and the California Department of Conservation identify preservation of existing Important Farmland acreage as desired mitigation for the loss of such acreage. Accordingly, Mitigation Measure AG-1 requires the applicant to preserve Important Farmland acreage in Stanislaus County at no less than 1:1 ratio.

**Zacharias Master Plan**

As shown in Exhibit 3.2-1, the Zacharias Master Plan area is mapped as containing 973.01 acres of Prime Farmland, 60.40 acres of Unique Farmland, and 151.49 acres of Farmland of Statewide Importance, for a total of 1,184.9 acres of Important Farmland. To assess the significant of this conversion, FCS prepared a LESA model for the Zacharias Master Plan. The results for the northern site are summarized in Table 3.2-5 and the results for the southern site are summarized in Table 3.2-6.

**Table 3.2-6: Zacharias Master Plan Land Evaluation and Site Assessment Model Scoring Summary**

Category	Factor	Points	Factor Weigh	Weighted Points
Land Evaluation	Land Capability Class	79.6	0.25	19.9

Category	Factor	Points	Factor Weigh	Weighted Points
	Storie Index	54.1	0.25	13.5
	<b>Subtotal</b>		<b>0.50</b>	<b>33.4</b>
Site Assessment	Project Size	100	0.15	15.0
	Water Resources Availability	80	0.15	12.0
	Surrounding Agricultural Lands	30	0.15	4.5
	Surrounding Protected Resource Lands	30	0.05	1.5
	<b>Subtotal</b>		<b>0.50</b>	<b>33.0</b>
			<b>Grand Total</b>	<b>66.4</b>
Notes: LESA scoring sheet provided in Appendix C. Source: FCS, 2020.				

As shown in Table 3.2-5, the Zacharias Master Plan has a total score of 66.4. The LESA model indicates that scores between 60 to 79 points are considered significant only if the either the Land Evaluation subtotal or the Site Assessment subtotal are less than 20. In this case, both subtotals for the northern and southern project sites are greater than 20; therefore, the proposed Zacharias Master Plan would be considered to have significant impact in terms of converting Important Farmland to non-agricultural use.

The City of Patterson General Plan designates the Master Plan area as “Low Density Residential.” This designation signify that the City has contemplated the conversion of this agricultural land to urban uses over the planning horizon of the General Plan and, therefore, does not view the project area as a preferred location for permanent agricultural uses. The EIR for the City of Patterson General Plan found that conversion of prime agricultural, including the project site, to urban uses to be a significant and unavoidable impact. As part of adopting the General Plan, the Patterson City Council adopted findings of fact and a statement of overriding consideration that indicated urban development was of greater benefit to the community than preserving agricultural land within city limits. Although conversion of the project area to urban uses would reflect the land use assumptions contained in the City of Patterson General Plan, farmland is an important resource to the region, and direct conversion of Important Farmland to urban land uses would be considered a significant impact under LESA methodology.

The City of Patterson, the County of Stanislaus, and the California Department of Conservation identify preservation of existing Important Farmland acreage as desired mitigation for the loss of such acreage. Accordingly, Mitigation Measure AG-1 requires the applicant to preserve Important Farmland acreage in Stanislaus County at no less than 1:1 ratio.

**Level of Significance Before Mitigation**

Potentially significant impact.

### **Mitigation Measures**

**MM AG-1** Prior to issuance of the grading permit, the project applicant shall preserve Important Farmland acreage, as mapped by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), within Stanislaus County (but outside of the Patterson Planning Area) at a ratio of no less than 1:1 for each acre of Important Farmland converted to non-agricultural use by the proposed project. Preserved acreage shall be of equal or higher quality to farmland converted to non-agricultural use by the proposed project. The preservation shall be accomplished through one of the following approaches:

- The applicant shall enter into a binding agreement with one or more private property owners or third-party organizations acceptable to the City of Patterson (e.g., Stanislaus County farm Bureau or the American Farmland Trust) to permanently preserve farmland. The agreement shall identify an irrevocable instrument that will be recorded against the preserved acreage property. This option shall be pursued if the City of Patterson does not have a farmland preservation program in place at the time permits are sought.
- If the City of Patterson establishes a farmland preservation program before the project applies for construction permits for any phase of development, the City may require the applicant to pay fees to the City of Patterson equivalent to cost of preserving Important Farmland. The City shall use the fees to fund an irrevocable instrument (e.g., deed restriction or reservation easements) to permanently preserve farmland.

### **Level of Significance After Mitigation**

Significant unavoidable impact.

### **Conflict with Agricultural Zoning or Williamson Act Contract**

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**Impact AG-2:** The project would potentially conflict with existing zoning for agricultural use, or a Williamson Act contract.

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### **Impact Analysis**

This impact will address potential conflicts with agricultural zoning or Williamson Act contracts. Each issue is issued separately.

### **Baldwin and Zacharias Master Plans**

#### *Agricultural Zoning*

The Master Plan areas are currently located in unincorporated Stanislaus County. The Stanislaus County Zoning Ordinances zones the Baldwin Master Plan area as “General Agriculture (A-2).” The Stanislaus County Zoning Ordinances zones the Zacharias Master Plan area “General Agriculture (A-2)” west of the PID Lateral M canal and “Rural Residential (R-A)” east of the canal.

The City of Patterson General Plan designates the Master Plan areas as “Low Density Residential,” which is a non-binding designation. This is also a “placeholder” land use designation the City has

assigned to unincorporated areas around the Patterson city limits and does not necessarily signify that the City intends for all of this land to be developed as low density residential. The applicants are seeking to annex the Baldwin and Zacharias Master Plan areas into the Patterson city limits. As part of the project, a General Plan Amendment would be processed to designate the Master Plan areas with the appropriate land use designations. The Master Plan areas would be rezoned in a similar fashion. This rezoning is a discretionary approval that is necessary for approval of the project and, therefore, is considered a “self-mitigating” aspect of the proposed project. As such, with the approval of the pre-zoning, no conflicts with the agricultural zoning would occur.

Note that agricultural activities would be permitted to continue on the parcels comprising the project site during the interim period between annexation and construction. Such activities would be considered “legal, conforming land use activities,” since they pre-date annexation and, therefore, would be exempt from compliance with the City zoning requirements.

#### *Williamson Act Contracts*

Six parcels within the Ranchette Triangle of the Zacharias Master Plan are currently encumbered by active Williamson Act contracts. The City of Patterson filed a protest with the Stanislaus County Board of Supervisors to exercise its option to not succeed to the rights, duties, and powers of the County under the Williamson Act contract because these properties were within the Sphere of Influence and, thus, contemplated for annexation. Therefore, the Williamson Act contracts will be automatically terminated once the Ranchette Triangle is annexed into the Patterson city limits. This would preclude conflicts with a Williamson Act contracts. Impacts would be less than significant.

#### ***Level of Significance Before Mitigation***

Less than significant impact.

#### ***Mitigation Measures***

None.

#### ***Level of Significance After Mitigation***

Less than significant impact.

#### **Pressures to Convert Farmland**

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<b>Impact AG-3:</b>	<b>The project would potentially conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).</b>
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#### ***Impact Analysis***

This impact will evaluate the potential for the proposed project to create pressures on surrounding agricultural lands, which could result in their ultimate conversion to non-agricultural use. In evaluating whether the proposed project would create pressures to convert farmland to non-agricultural use, this impact analysis will focus on whether the proposed project would (1) be in conflict with the long-term vision of the City of Patterson General Plan in the context of preservation

of agricultural resources and (2) whether it would serve as a catalyst for premature conversion of agricultural land to non-agricultural use.

### ***Baldwin and Zacharias Master Plans***

As shown in Exhibit 3.2-3a farmland exists to the north and east of the Zacharias Master Plan area. As shown in Exhibit 3.2-3b, large portions of farmland exist to the west, south, and east of the Baldwin Master Plan area. All of the lands immediately adjacent to the project site are within the Patterson General Plan Planning Area or within the Patterson Sphere of Influence, signifying that they are contemplated to convert to urban use at some point in the future. Thus, to the extent that these areas ultimately convert to urban uses, it would be in accordance with the long-term vision of the General Plan and not solely a consequence of the proposed project.

Furthermore, the General Plan sets forth Policy NR-2.1 and Policy NR-2.2, which call for developing areas contiguous to existing urban development in order to discourage premature conversion of farmland to non-agricultural use. Thus, it would be expected that conversion of farmland areas around the Master Plan areas to non-agricultural use would be discouraged until such time that buildout of the Master Plans is completed. As such, the proposed Master Plans would not be expected to result in the premature conversion of this acreage to non-agricultural use.

Finally, Stanislaus County's buffer and setback requirements would apply to the portions of the project site that would abut unincorporated farmland that is not within the Sphere of Influence. In this case, these requirements pertain to the areas north of Zacharias Road and areas west and south of the Baldwin Master Plan area. In the north, Zacharias Road is contemplated to be the future alignment of the South County Corridor and, thus, this road would serve as the buffer. In the south, the Delta-Canal Canal is located between the Baldwin Master Plan area and areas to the west and, thus, would act as a buffer. A landscaped setback would be located between the Master Plan area and the agricultural lands to the south.

The adjoining properties to the south and east of the southern project site are zoned General Agriculture (A-2). As such, Mitigation Measure AG-3 requires that proposed project have a minimum 150-foot landscaping setback. With the implementation of this mitigation measure, impacts would be less than significant.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

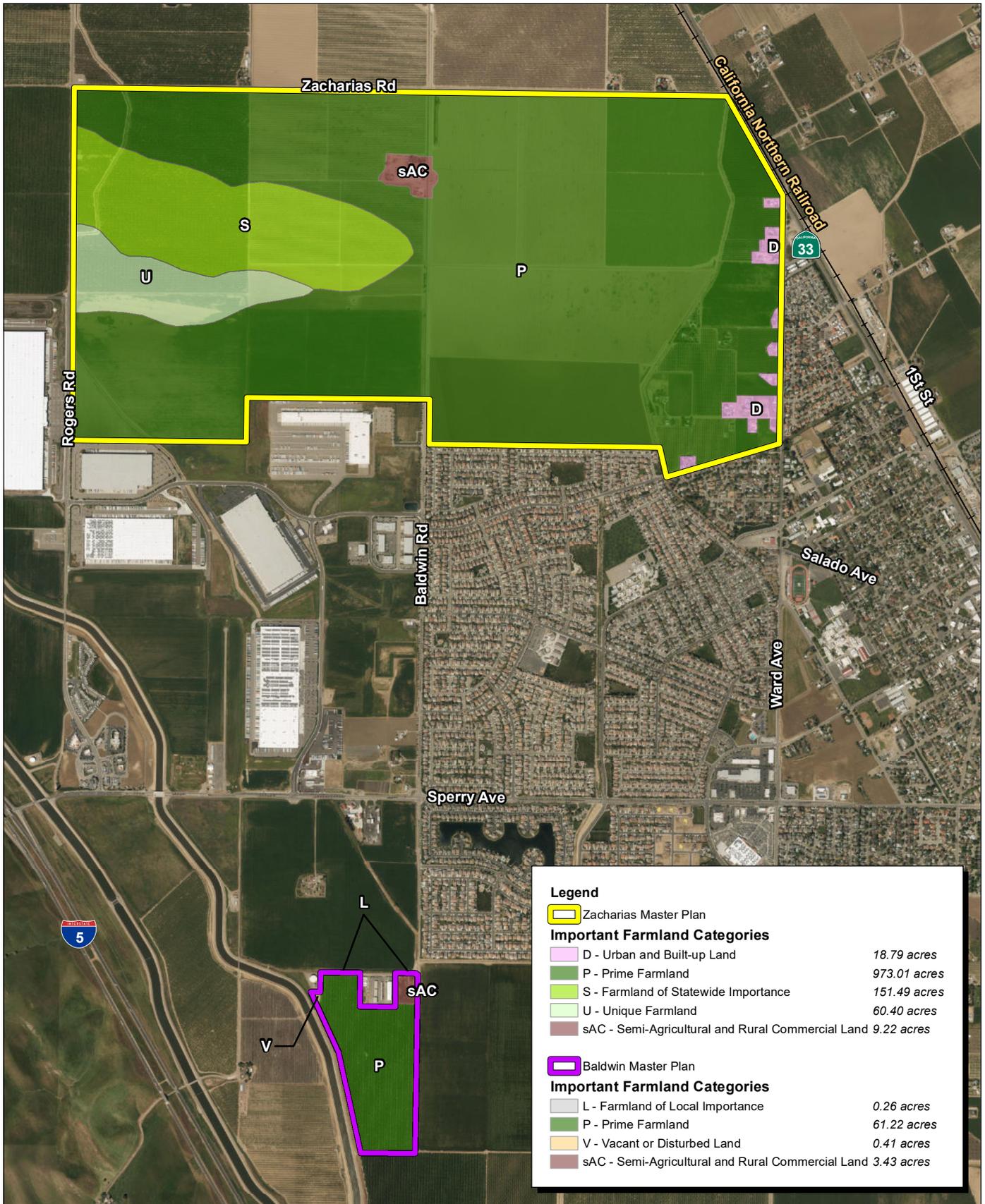
**MM AG-3** Prior to the issuance of the grading permit, the project applicant shall prepare and submit plans to the City of Patterson demonstrating that the 150-foot minimum setbacks have been established between the proposed project and all agricultural lands in unincorporated Stanislaus County zoned General Agriculture (A-2) and outside the Patterson Sphere of Influence. Pursuant to the County's policy, permitted uses within the setback may include public roadways, utilities, drainage facilities, rivers and adjacent riparian areas, landscaping, parking lots, and similar low-people-intensive uses. Permitted uses may also include non-agricultural uses

adjoining or surrounding a project site (including but not limited to legal, non-conforming uses and home sites) that are of a permanent nature and are not likely to be returned to agriculture. Landscaping within a buffer setback area shall be designed to exclude turf areas that could induce activities and add to overall maintenance costs and water usage.

***Level of Significance After Mitigation***

Less than significant impact.

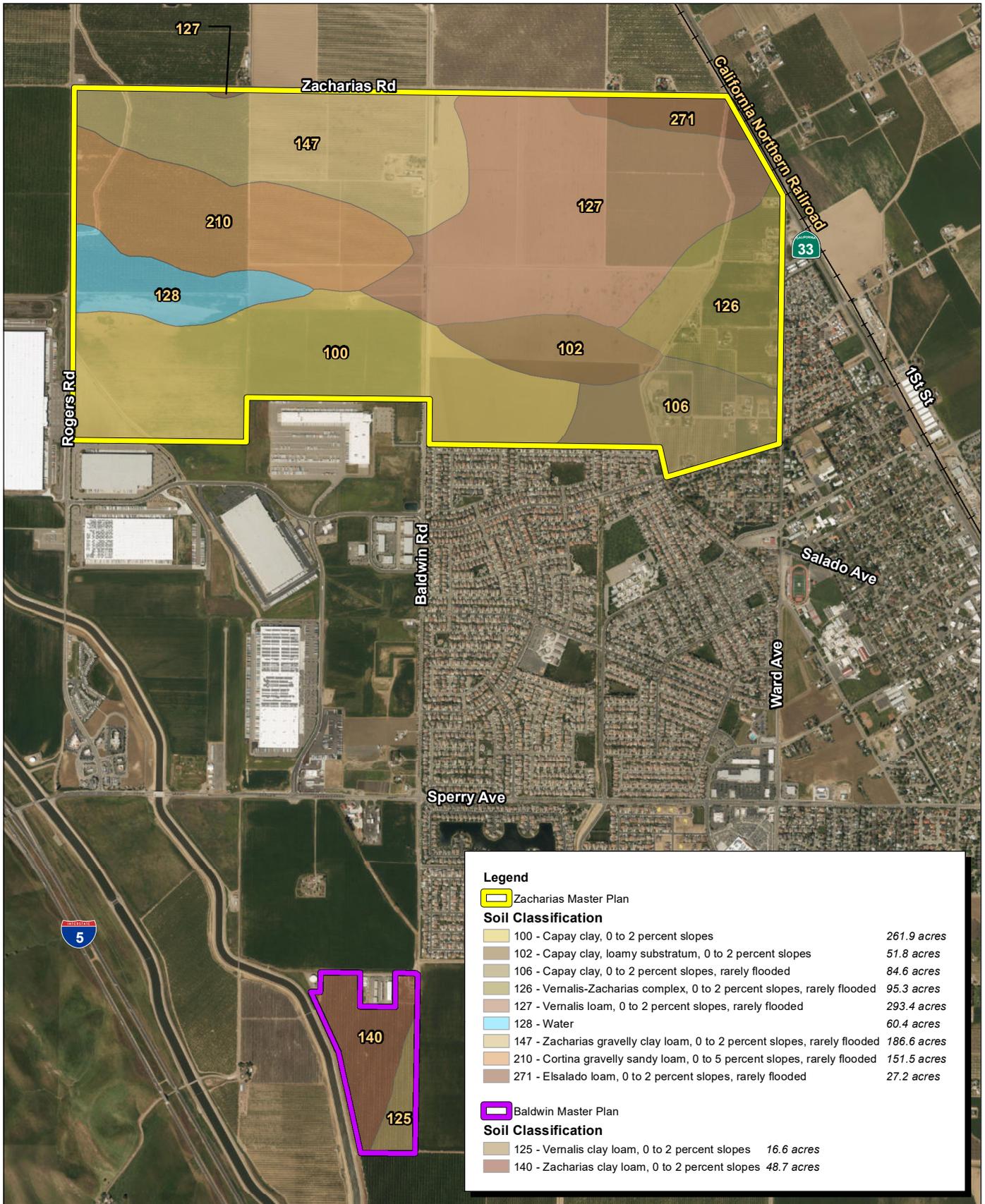
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Source: ESRI Aerial Imagery. CA Department of Conservation Stanislaus County FMMP, 2016.



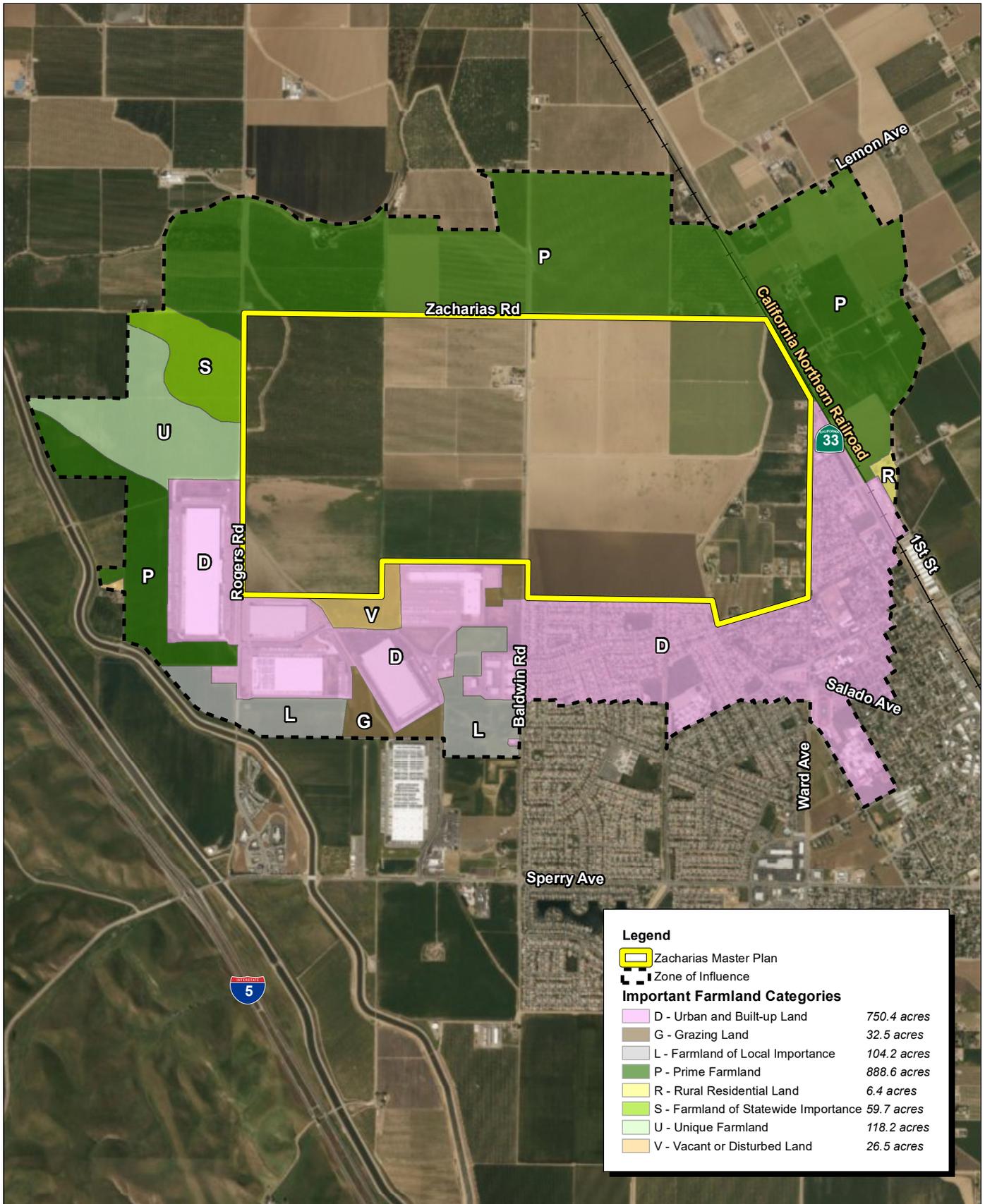
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Source: ESRI Aerial Imagery, CA Department of Conservation Stanislaus County FMMP, 2016.



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**Legend**

Zacharias Master Plan

Zone of Influence

**Important Farmland Categories**

	D - Urban and Built-up Land	750.4 acres
	G - Grazing Land	32.5 acres
	L - Farmland of Local Importance	104.2 acres
	P - Prime Farmland	888.6 acres
	R - Rural Residential Land	6.4 acres
	S - Farmland of Statewide Importance	59.7 acres
	U - Unique Farmland	118.2 acres
	V - Vacant or Disturbed Land	26.5 acres

Source: ESRI Aerial Imagery. CA Department of Conservation Stanislaus County FMMP, 2016.

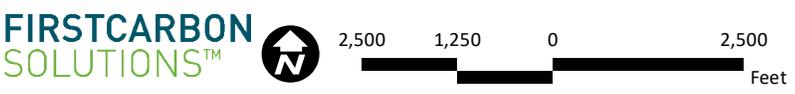
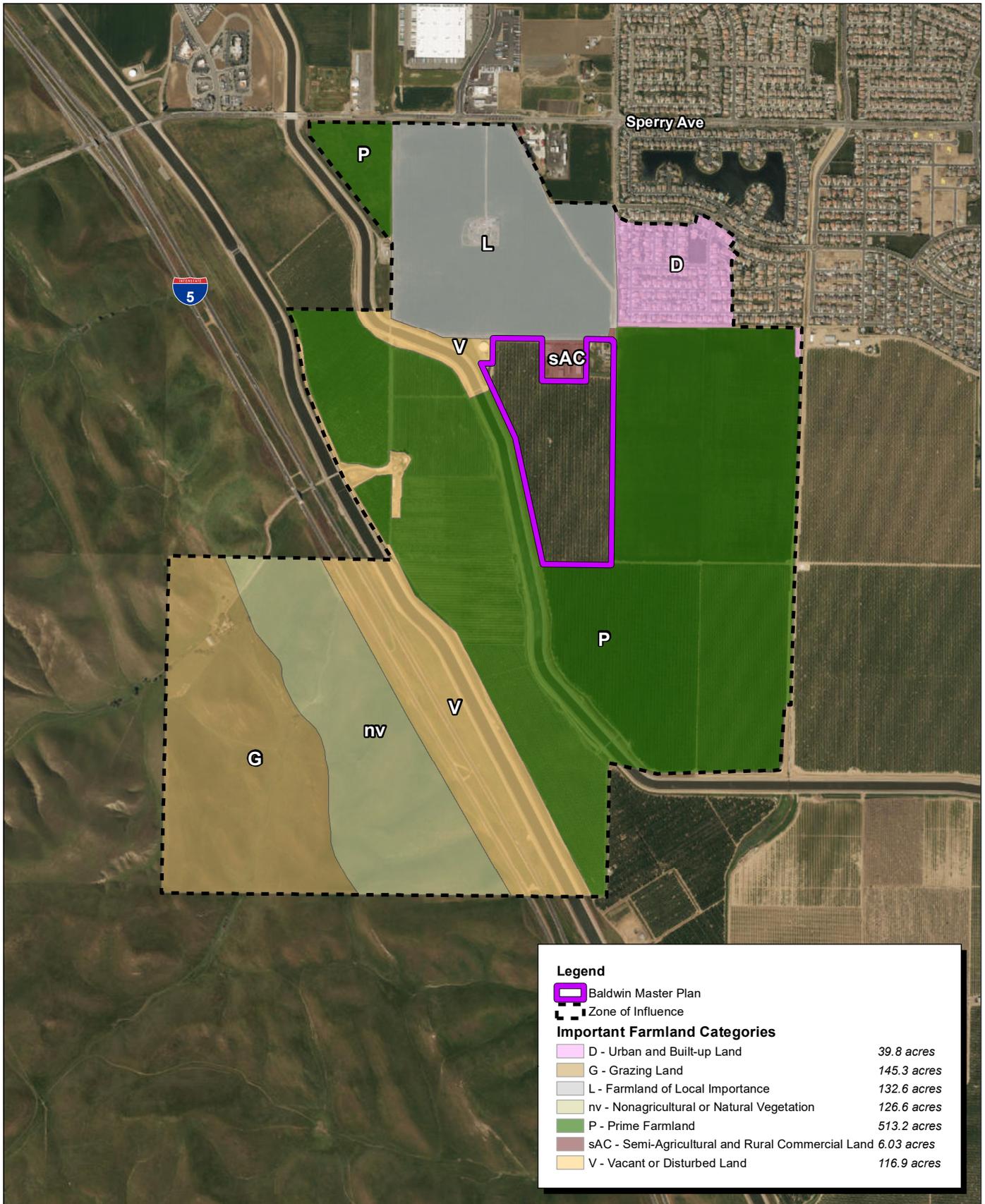


Exhibit 3.2-3a  
Zone of Influence  
Zacharias Master Plan

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**Legend**

- Baldwin Master Plan
- Zone of Influence

**Important Farmland Categories**

	D - Urban and Built-up Land	39.8 acres
	G - Grazing Land	145.3 acres
	L - Farmland of Local Importance	132.6 acres
	nv - Nonagricultural or Natural Vegetation	126.6 acres
	P - Prime Farmland	513.2 acres
	sAC - Semi-Agricultural and Rural Commercial Land	6.03 acres
	V - Vacant or Disturbed Land	116.9 acres

Source: ESRI Aerial Imagery. CA Department of Conservation Stanislaus County FMMP, 2016.

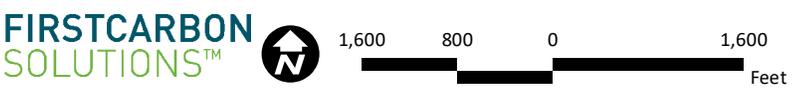
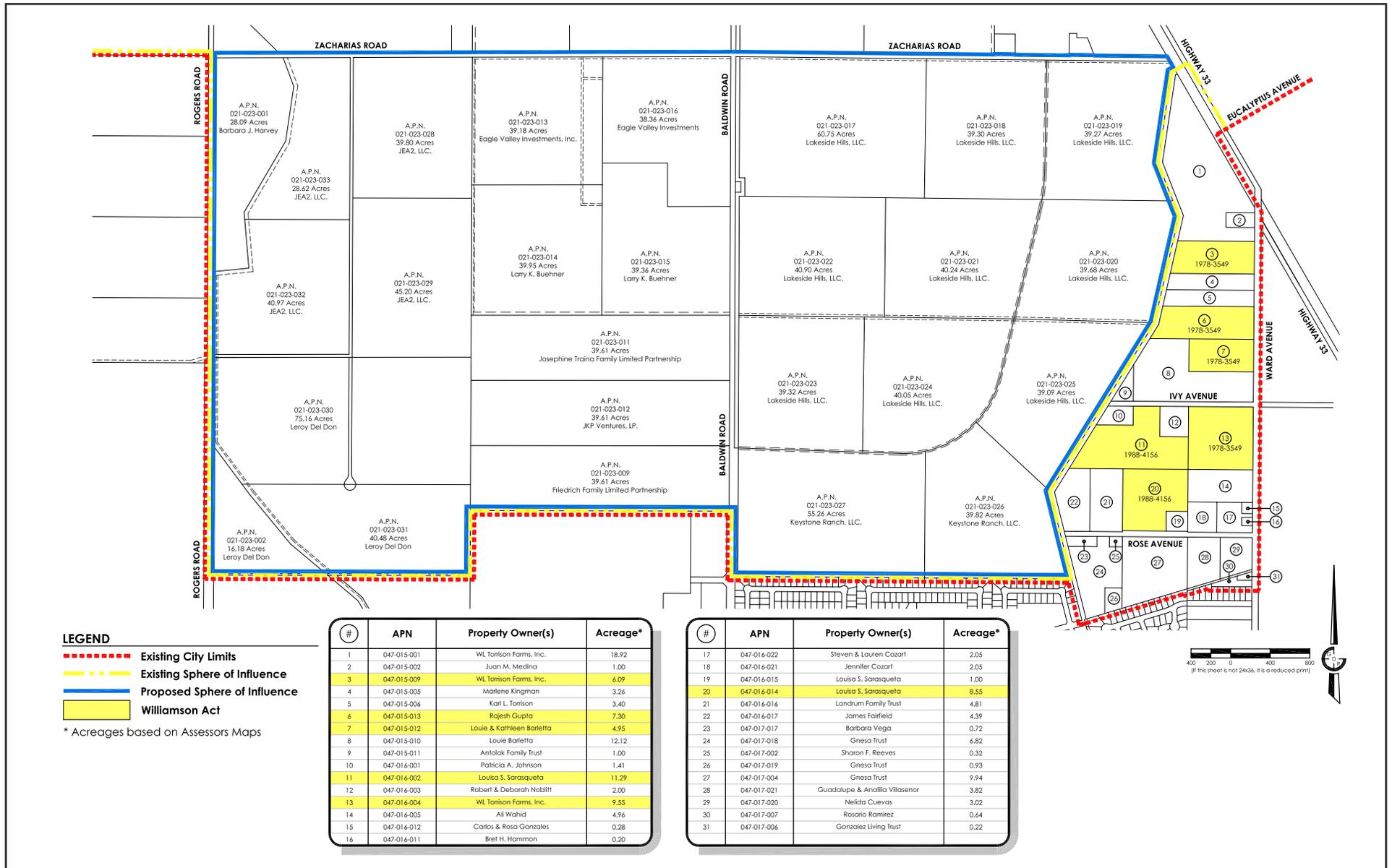


Exhibit 3.2-3b  
 Zone of Influence  
 Baldwin Master Plan

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Source: GDR Engineering, Inc., January 21, 2019.

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## 3.3 - Air Quality

### 3.3.1 - Introduction

This section describes existing air quality conditions regionally and locally as well as the relevant regulatory framework. This section also evaluates the possible impacts related to air quality that could result from implementation of the proposed project. Information included in this section is based on project-specific air quality modeling results utilizing California Emissions Estimator Model (CalEEMod) version 2016.3.2. Complete modeling output is provided in Appendix C.

### 3.3.2 - Environmental Setting

#### Regional Geography and Climate

The proposed Master Plans are located in Stanislaus County, within the San Joaquin Valley Air Basin (Air Basin). Regional and local air quality is impacted by topography, dominant airflows, atmospheric inversions, location, and season. The following section describes these conditions as they pertain to the Air Basin.

#### San Joaquin Valley Air Basin

The information in this section is primarily from the District's Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) and the accompanying Technical Document.

#### *Topography*

The topography of a region is important for air quality because mountains can block airflow that would help disperse pollutants and can channel air from upwind areas that transports pollutants to downwind areas. The San Joaquin Valley Air Pollution Control District (Valley Air District) covers the entirety of the Air Basin. The Air Basin is generally shaped like a bowl. It is open in the north and is surrounded by mountain ranges on all other sides. The Sierra Nevada mountains are along the eastern boundary (8,000 to 14,000 feet in elevation), the Coast Ranges are along the western boundary (3,000 feet in elevation), and the Tehachapi Mountains are along the southern boundary (6,000 to 8,000 feet in elevation).

#### *Climate*

The climate is important for air quality because of differences in the atmosphere's ability to trap pollutants close to the ground, creating adverse air quality or rapidly dispersing pollutants over a wide area, thus preventing high concentrations from accumulating under different climatic conditions. The Air Basin has an "inland Mediterranean" climate and is characterized by long, hot, dry summers and short, foggy winters. Sunlight can be a catalyst in the formation of some air pollutants (such as ozone); the Air Basin averages over 260 sunny days per year.

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the Air Basin form natural horizontal barriers to the dispersion of air contaminants. The wind generally flows south-southeast through the Valley, through the Tehachapi Pass and into the Southeast Desert Air Basin portion of Kern County. As the wind moves through the

Air Basin, it mixes with the air pollution generated locally, generally transporting air pollutants from the north to the south in the summer and in a reverse flow in the winter.

### 3.3.3 - Regulatory Framework

Air pollutants are regulated to protect human health and for secondary effects such as visibility and building soiling. The Clean Air Act of 1970 tasks the United States Environmental Protection Agency (EPA) with setting air quality standards. The State of California also sets air quality standards that are in some cases more stringent than federal standards and address additional pollutants. The following section describes these federal and State standards and the health effects of the regulated pollutants.

#### **Clean Air Act**

Congress established much of the basic structure of the Clean Air Act (CAA) in 1970 and made major revisions in 1977 and 1990. Six common air pollutants (also known as criteria pollutants) are addressed in the CAA. These are particulate matter, ground-level ozone, CO, sulfur oxides, nitrogen oxides, and lead. The EPA calls these pollutants criteria air pollutants, because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health are called primary standards. Another set of limits intended to prevent environmental and property damage are called secondary standards (EPA 2014). The federal standards are called NAAQS. The air quality standards provide benchmarks for determining whether air quality is healthy at specific locations and whether development activities will cause or contribute to a violation of the standards. The criteria pollutants are:

- Ozone
- Nitrogen dioxide (NO<sub>2</sub>)
- Lead
- Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the EPA is tasked with updating the standards as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

The Clean Air Act also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies.

#### **California Clean Air Act**

The California Legislature enacted the California Clean Air Act (CCAA) in 1988 to address air quality issues of concern not adequately addressed by the federal CAA at the time. California's air quality problems were and continue to be some of the most severe in the nation and required additional

actions beyond the federal mandates. The California Air Resources Board (ARB) administers the CAAQS for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six federal standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The EPA authorized California to adopt its own regulations for motor vehicles and other sources that are more stringent than similar federal regulations implementing the CAA. Generally, the planning requirements of the CCAA are more stringent than the federal CAA; therefore, consistency with the CAA will also demonstrate consistency with the CCAA.

Other ARB responsibilities include but are not limited to overseeing local air district compliance with California and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; conducting basic research aimed at providing a better understanding between emissions and public well-being, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

### ***Toxic Air Contaminants***

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. There are no ambient air quality standards for TAC emissions. TACs are regulated in terms of health risks to individuals and populations exposed to the pollutants. The 1990 Clean Air Act Amendments significantly expanded the EPA's authority to regulate Hazardous Air Pollutants (HAP). Section 112 of the CAA lists 187 HAPs to be regulated by source category. Authority to regulate these pollutants was delegated to individual states. The ARB and local air districts regulate TACs and HAPs in California.

### ***Air Pollutant Description and Health Effects***

The federal and State ambient air quality standards, relevant effects, properties, and sources of the air pollutants are summarized in Table 3.3-1.

**Table 3.3-1: Description of Air Pollutants**

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfur dioxide <sup>c</sup> (SO <sub>2</sub> )	1 Hour	0.25 ppm	0.075 ppm	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO <sub>x</sub> ) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM <sub>10</sub> .	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour	—	0.5 ppm			
	24 Hour	0.04 ppm	0.14 (for certain areas)			
	Annual	—	0.030 ppm (for certain areas)			
Particulate matter (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	<ul style="list-style-type: none"> <li>• Short-term exposure (hours/days): irritation of the eyes, nose, throat; coughing; phlegm; chest tightness; shortness of breath; aggravated existing lung disease, causing asthma attacks and acute bronchitis; those with heart disease can suffer heart attacks and arrhythmias.</li> <li>• Long-term exposure: reduced lung function; chronic bronchitis; changes in lung morphology; death.</li> </ul>	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM <sub>10</sub> refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). PM <sub>2.5</sub> refers to particulate matter that is 2.5 microns or less in diameter, about one-thirtieth the size of the average human hair.	Stationary sources include fuel or wood combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust. Secondary particles form from reactions in the atmosphere.
	Mean	20 µg/m <sup>3</sup>	—			
Particulate matter (PM <sub>2.5</sub> )	24 Hour	—	35 µg/m <sup>3</sup>			
	Annual	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>			
Visibility-reducing particles	8 Hour	See note below <sup>d</sup>				

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m <sup>3</sup>	—	Decrease in ventilatory function; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; and property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO <sub>4</sub> <sup>2-</sup> . Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead <sup>e</sup>	30-day	1.5 µg/m <sup>3</sup>	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m <sup>3</sup>			
	Rolling 3-month average	—	0.15 µg/m <sup>3</sup>			
Vinyl chloride <sup>e</sup>	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, the ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H <sub>2</sub> S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no state or federal standards for VOCs		Although health-based standards have not been established for VOCs,	Reactive organic gases (ROG), or VOCs, are defined as any compound	Indoor sources of VOCs include paints, solvents, aerosol sprays,

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
		because they are not classified as criteria pollutants.		health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	of carbon—excluding carbon monoxide, carbon dioxide (CO <sub>2</sub> ), carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROG and VOCs, the two terms are often used interchangeably.	cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM <sub>10</sub> and lower visibility.
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	DPM is a source of PM <sub>2.5</sub> —diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Notes:

ppm = parts per million (concentration) μg/m<sup>3</sup> = micrograms per cubic meter    Annual = Annual Arithmetic Mean    30-day = 30-day average    Quarter = Calendar quarter

<sup>a</sup> Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO<sub>2</sub>, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Air Pollutant	Averaging Time	California Standard	Federal Standard <sup>a</sup>	Most Relevant Effects from Pollutant Exposure	Properties	Sources
<p><sup>b</sup> To attain the 1-hour NO<sub>2</sub> national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb) (0.100 ppm).</p> <p><sup>c</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.</p> <p><sup>d</sup> Visibility-reducing particles: In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.</p> <p><sup>e</sup> The ARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.</p> <p><sup>f</sup> The EPA Administrator approved a revised 8-hour ozone standard of 0.07 ppb on October 1, 2015. The new standard went into effect 60 days after publication of the Final Rule in the Federal Register. The Final Rule was published in the Federal Register on October 26, 2015 and became effective on December 28, 2015.</p> <p><sup>g</sup> The official level of the 1-hour NO<sub>2</sub> standard is 100 ppb, equal to 0.100ppm, which is shown here for the purpose of clearer comparison to the other standards.</p> <p>Source of effects, properties, and sources:</p> <ul style="list-style-type: none"> <li>- Source of effects, properties, and sources: South Coast Air Quality Management District 2007; California Environmental Protection Agency 2002; California Air Resources Board 2009a; United States Environmental Protection Agency 2003, 2009a, 2009b, 2010, 2011, 2012a and 2012b; National Toxicology Program 2011 and 2016.</li> <li>- Source of standards: California Air Resources Board 2013a.</li> </ul>						

Several pollutants listed in Table 3.3-1 are not addressed in this analysis. Analysis of lead is not included in this report because no new sources of lead emissions are anticipated with the project. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed as PM<sub>10</sub> and PM<sub>2.5</sub>. No components of the project would result in vinyl chloride or hydrogen sulfide emissions in any substantial quantity.

### **Toxic Air Contaminants Health Effects**

A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. The California Almanac of Emissions and Air Quality—2009 Edition presents the relevant concentration and cancer risk data for the 10 TACs that pose the most substantial health risk in California based on available data. The ten TACs are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (DPM).

Some studies indicate that DPM poses the greatest health risk among the TACs listed above. A 10-year research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

DPM differs from other TACs in that it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for DPM because no routine measurement method currently exists. The ARB has made preliminary concentration estimates based on a DPM exposure method. This method uses the ARB emissions inventory's PM<sub>10</sub> database, ambient PM<sub>10</sub> monitoring data, and the results from several studies to estimate concentrations of DPM.

### **Asbestos**

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. Exposure to asbestos is a health threat; exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest, and abdominal cavity), and asbestosis (a non-cancerous lung disease that causes

scarring of the lungs). Exposure to asbestos can occur during demolition or remodeling of buildings that were constructed prior to the 1977 ban on asbestos for use in buildings. Exposure to naturally occurring asbestos can occur during soil-disturbing activities in areas with deposits present. No naturally occurring asbestos is located near the project site.<sup>1</sup>

### Existing Air Quality Conditions

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 3.3-2 summarizes 2016 through 2018 published monitoring data, which is the most recent three-year period available. The table displays data from the Modesto-14<sup>th</sup> Street monitoring station (located approximately 12.8 mi northeast) and the Turlock-S Minaret Street monitoring station (located 16.5 mi east). The data shows that during the past few years, the project area has exceeded the standards for ozone (state and national), PM<sub>10</sub> (state), and PM<sub>2.5</sub> (national). The data in the table reflects the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period. No recent monitoring data for Stanislaus County or the San Joaquin Valley Air Basin was available for CO or SO<sub>2</sub>. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

**Table 3.3-2: Air Quality Monitoring Summary**

Air Pollutant	Averaging Time	Item	2016	2017	2018
Ozone <sup>1</sup>	1 Hour	Max 1 Hour (ppm)	<b>0.105</b>	<b>0.111</b>	<b>0.103</b>
		Days > State Standard (0.09 ppm)	<b>4</b>	<b>3</b>	<b>2</b>
	8 Hour	Max 8 Hour (ppm)	<b>0.092</b>	<b>0.098</b>	<b>0.091</b>
		Days > State Standard (0.07 ppm)	<b>22</b>	<b>23</b>	<b>14</b>
		Days > National Standard (0.070 ppm)	<b>11</b>	<b>10</b>	<b>5</b>
Carbon monoxide (CO) <sup>2</sup>	8 Hour	Max 8 Hour (ppm)	ID	ID	ID
		Days > State Standard (9.0 ppm)	ID	ID	ID
		Days > National Standard (9 ppm)	ID	ID	ID
Nitrogen dioxide (NO <sub>2</sub> ) <sup>2</sup>	Annual	Annual Average (ppm)	9	9	9
	1 Hour	Max 1 Hour (ppm)	47	58	67
		Days > State Standard (0.18 ppm)	0	0	0
Sulfur dioxide (SO <sub>2</sub> ) <sup>2</sup>	Annual	Annual Average (ppm)	ID	ID	ID
	24 Hour	Max 24 Hour (ppm)	ID	ID	ID
		Days > State Standard (0.04 ppm)	ID	ID	ID
Inhalable coarse particles (PM <sub>10</sub> ) <sup>1</sup>	Annual	Annual Average (µg/m <sup>3</sup> )	27.6	31.4	32.1
	24 hour	24 Hour (µg/m <sup>3</sup> )	<b>81.5</b>	<b>128.9</b>	<b>236.4</b>
		Days > State Standard (50 µg/m <sup>3</sup> )	ID	<b>58.2</b>	ID

Air Pollutant	Averaging Time	Item	2016	2017	2018
		Days > National Standard (150 µg/m <sup>3</sup> )	ID	0.0	<b>4.3</b>
Fine particulate matter (PM <sub>2.5</sub> ) <sup>2</sup>	Annual	Annual Average (µg/m <sup>3</sup> )	8.6	<b>12.9</b>	<b>15.2</b>
	24 Hour	24 Hour (µg/m <sup>3</sup> )	<b>53.3</b>	<b>74.5</b>	<b>189.8</b>
		Days > National Standard (35 µg/m <sup>3</sup> )	<b>9.0</b>	<b>25.1</b>	<b>21.5</b>
Notes: > = exceed                      ppm = parts per million                      µg/m <sup>3</sup> = micrograms per cubic meter ID = insufficient data              ND = no data                                      max = maximum Bold = exceedance * = national data used instead of state data (state data unavailable) State Standard = California Ambient Air Quality Standard National Standard = National Ambient Air Quality Standard 1              Modesto-14th Street 2              Turlock-S Minaret Street Source: ARB 2020					

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest comparison is to the state and federal ozone standards. Air concentration below standards indicate that health risks are sufficiently low enough to have a minimal impact on public health, as there is no such thing as a zero-risk level. When concentrations exceed the standards, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 3.3-3 provides a description of the health impacts of ozone at different concentrations.

**Table 3.3-3: Air Quality Index and Health Effects from Ozone**

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
<b>AQI 100—Moderate</b>	<b>Sensitive Groups:</b> Children and people with asthma are the groups most at risk.
Concentration 75 ppb	<b>Health Effects Statements:</b> Unusually sensitive individuals may experience respiratory symptoms.  <b>Cautionary Statements:</b> Unusually sensitive people should consider limiting prolonged outdoor exertion.
<b>AQI 150—Unhealthy for Sensitive Groups</b>	<b>Sensitive Groups:</b> Children and people with asthma are the groups most at risk.
Concentration 95 ppb	<b>Health Effects Statements:</b> Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma.  <b>Cautionary Statements:</b> Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
<b>AQI 200—Unhealthy</b>	<b>Sensitive Groups:</b> Children and people with asthma are the groups most at risk.

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
Concentration 115 ppb	<p><b>Health Effects Statements:</b> Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.</p> <p><b>Cautionary Statements:</b> Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.</p>
<b>AQI 210—Very Unhealthy</b>	<p><b>Sensitive Groups:</b> Children and people with asthma are the groups most at risk.</p>
Concentration 139 ppb	<p><b>Health Effects Statements:</b> Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.</p> <p><b>Cautionary Statements:</b> Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.</p>
Source: Air Now. 2015. AQI Calculator: AQI to Concentration	

The highest reading for the 8-hour ozone standard for the last three years at the Modesto-14th Street monitoring station was 92 parts per billion (ppb) in 2016 ,98 parts per billion (ppb) in 2017 and 91 parts per billion (ppb) in 2018, which is between the 95 ppb cutoff point for Unhealthy for Sensitive Groups and (AQI 150) and the 115 ppb cutoff for Unhealthy (AQI 200).

**Attainment Status**

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as “nonattainment” areas. If standards are met, the area is designated as an “attainment” area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered “unclassified.” National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

Each standard has a different definition, or “form” of what constitutes attainment, based on specific air quality statistics. For example, the federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM<sub>2.5</sub> standard is met if the 3-year average of the annual average PM<sub>2.5</sub> concentration is less than or equal to the standard.

The current attainment designations for the San Joaquin Valley Air Basin are shown in Table 3.3-4. The Air Basin is designated as nonattainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>.

**Table 3.3-4: San Joaquin Valley Air Basin Attainment Status**

Pollutant	State Status	National Status
Ozone—One Hour	Nonattainment/Severe	No Standard
Ozone—Eight Hour	Nonattainment	Nonattainment/Extreme
Carbon monoxide	Attainment/Unclassified	Merced, Madera, and Kings Counties are unclassified; others are in Attainment
Nitrogen dioxide	Attainment	Attainment/Unclassified
Sulfur dioxide	Attainment	Attainment/Unclassified
PM10	Nonattainment	Attainment
PM2.5	Nonattainment	Nonattainment
Lead	Attainment	No Designation/Classification
Source: ARB 2019. Area Designation Maps/State and National.		

**Air Quality Plans and Regulations**

Air pollutants are regulated at the national, state, and air basin or county level; each agency has a different level of regulatory responsibility. The EPA regulates at the national level. The ARB regulates at the state level. The Valley Air District regulates at the air basin level.

The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans (SIP), provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as the federal standards described earlier.

A SIP is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal air standards. The SIP for the State of California is administered by the ARB, which has overall responsibility for Statewide air quality maintenance and air pollution prevention. California’s SIP incorporates individual federal attainment plans for regional air districts—an air district prepares their federal attainment plan, which is sent to the ARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

Areas designated non-attainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional State and local regulation is required to achieve the standards. Regulations adopted by California are described below.

## **Federal**

Air pollutants are regulated at the national, state, and air basin or county level; each agency has a different level of regulatory responsibility. The EPA regulates at the national level. The ARB regulates at the state level. The Valley Air District regulates at the air basin level.

The EPA is responsible for national and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as the federal standards, described earlier.

The most recent attainment plans for the Valley Air District are the 2007 8-hour Ozone Attainment Plan and the 2012 PM<sub>2.5</sub> Plan for the 2006 PM<sub>2.5</sub> standard. The Air Basin is designated as an extreme ozone nonattainment area for the EPA's 2008 8-hour ozone standard of 75 ppb. The EPA Administrator signed the Final Rule revising the 8-hour ozone standard to 70 ppm on October 1, 2015. Adoption of a new standard requires an implementation process that includes making attainment designations and the development of new plans to attain the standard based on each area's designation. The District's Governing Board approved the 2016 Plan for the 2008 8-Hour Ozone Standard on June 16, 2016. The comprehensive strategy in this plan will reduce oxides of nitrogen (NO<sub>x</sub>) emissions by over 60 percent between 2012 and 2031, and will bring the San Joaquin Valley into attainment of EPA's 2008 8-hour ozone standard as expeditiously as practicable, no later than December 31, 2031.

Areas designated non-attainment must develop air quality plans and regulations to achieve standards by specified dates, depending on the severity of the exceedances. For much of the country, implementation of federal motor vehicle standards and compliance with federal permitting requirements for industrial sources are adequate to attain air quality standards on schedule. For many areas of California, however, additional state and local regulation is required to achieve the standards. Regulations adopted by California are described below.

## **California**

### *Low-Emission Vehicle Program*

The ARB first adopted Low Emission Vehicle (LEV) program standards in 1990. These first LEV standards ran from 1994 through 2003. LEV II regulations, running from 2004 through 2010, represent continuing progress in emission reductions. As the State's passenger vehicle fleet continues to grow and more sport utility vehicles and pickup trucks are used as passenger cars rather than work vehicles, the more stringent LEV II standards were adopted to provide reductions necessary for California to meet federally mandated clean air goals outlined in the 1994 State Implementation Plan. In 2012, the ARB adopted the LEV III amendments to California's Low-Emission Vehicle (LEV) regulations. These amendments, also known as the Advanced Clean Car Program include more stringent emission standards for model years 2017 through 2025 for both criteria pollutants and GHGs for new passenger vehicles (ARB 2012a).

### *On-Road Heavy-Duty Vehicle Program*

The ARB has adopted standards for emissions from various types of new on-road heavy-duty vehicles. Section 1956.8, Title 13, California Code of Regulations contains California's emission standards for on-road heavy-duty engines and vehicles, and test procedures. The ARB has also adopted programs to reduce emissions from in-use heavy-duty vehicles including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards, and the School Bus Program and others (ARB 2013b).

### *ARB Regulation for In-Use Off-Road Diesel Vehicles*

On July 26, 2007, the ARB adopted a regulation to reduce DPM and nitrous oxides (NO<sub>x</sub>) emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to \$10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NO<sub>x</sub> emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements, making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

The latest amendments to the Truck and Bus regulation became effective on December 31, 2014. The amended regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks (ARB 2015b).

### *ARB Airborne Toxic Control Measure for Asbestos*

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos, but no demolition is associated with this project. However, asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentine) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The ARB has an Air Toxics Control Measure for construction, grading, quarrying, and surface mining operations, requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. The measure applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The measure also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity. Review of the Department of Conservation maps indicates that no ultramafic rock has been found near the city of Tracy.

#### *Diesel Risk Reduction Plan*

The ARB's Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, are reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020 (ARB 2000).

### ***San Joaquin Valley Air Pollution Control District***

#### *Ozone Plans*

The Air Basin is designated nonattainment of state and federal health-based air quality standards for ozone. To meet Clean Air Act requirements for the one-hour ozone standard, the District adopted an Extreme Ozone Attainment Demonstration Plan in 2004, with an attainment date of 2010. Although the EPA revoked the federal 1-hour ozone standard effective June 15, 2005 and replaced it with an 8-hour standard, the requirement to submit a plan for that standard remained in effect for the San Joaquin Valley.

The planning requirements for the 1-hour plan remain in effect until replaced by a federal 8-hour ozone attainment plan. The EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan, including revisions to the plan, on March 8, 2010, effective April 7, 2010. However, the Air Basin failed to attain the standard in 2010 and was subject to a \$29-million Clean Air Act penalty. The penalty is being collected through an additional \$12 motor vehicle registration surcharge for each passenger vehicle registered in the Air Basin that will be applied to pollution reduction programs in

the region. The District also instituted a more robust ozone episodic program to reduce emissions on days with the potential to exceed the ozone standards. On July 18, 2016, the EPA published in the Federal Register a final action determining that the San Joaquin Valley has attained the 1-hour ozone national ambient air quality standard. This determination is based on the most recent 3-year period (2012–2014) of sufficient, quality-assured, and certified data (EPA 2016b).

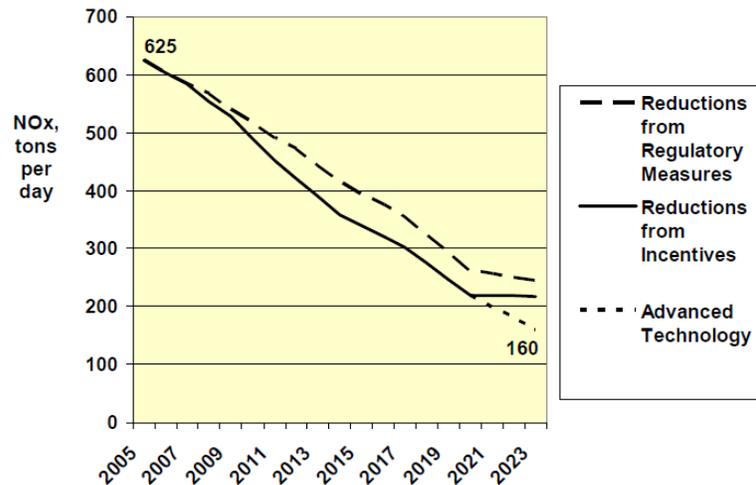
The EPA originally classified the Air Basin as serious nonattainment for the 1997 federal 8-hour ozone standard with an attainment date of 2013. On April 30, 2007, the District’s Governing Board adopted the 2007 Ozone Plan, which contained analysis showing a 2013 attainment target to be infeasible. The 2007 Ozone Plan details the plan for achieving attainment on schedule with an “extreme nonattainment” deadline of 2024. At its adoption of the 2007 Ozone Plan, the District also requested a reclassification to extreme nonattainment. The ARB approved the plan in June 2007, and the EPA approved the request for reclassification to extreme nonattainment on April 15, 2010.

The 2007 Ozone Plan contains measures to reduce ozone and particulate matter precursor emissions to bring the Basin into attainment with the federal 8-hour ozone standard. The 2007 Ozone Plan calls for a 75-percent reduction of NO<sub>x</sub> and a 25-percent reduction of reactive organic gases (ROG). Figure 1 displays the anticipated NO<sub>x</sub> reductions attributed in the 2007 Ozone Plan (Source: 2007 Ozone Plan). The plan, with innovative measures and a “dual path” strategy, assures expeditious attainment of the federal 8-hour ozone standard for all Air Basin residents. The District Governing Board adopted the 2007 Ozone Plan on April 30, 2007. The ARB approved the plan on June 14, 2007. The 2007 Ozone Plan requires yet to be determined “Advanced Technology” to achieve additional reductions after 2021, in order to attain the standard at all monitoring stations in the Air Basin by 2024 as allowed for areas designated extreme nonattainment by the CAA.

The Air Basin is designated as an extreme ozone nonattainment area for the EPA’s 2008 8-hour ozone standard of 75 ppb. The plan to address this standard was developed for the region to attain EPA’s 2008 8-hour ozone standard by December 31, 2031.

State ozone standards do not have an attainment deadline but require implementation of all feasible measures to achieve attainment at the earliest date possible. This is achieved through compliance with the federal deadlines and control measure requirements.

**Figure 1: San Joaquin Valley NO<sub>x</sub> Emissions Forecast**



*Particulate Matter Plans*

The Air Basin was designated nonattainment of state and federal health-based air quality standards for PM<sub>10</sub>. The Air Basin is also designated nonattainment of state and federal standards for PM<sub>2.5</sub>.

To meet Clean Air Act requirements for the PM<sub>10</sub> standard, the District adopted a PM<sub>10</sub> Attainment Demonstration Plan (Amended 2003 PM<sub>10</sub> Plan and 2006 PM<sub>10</sub> Plan), which has an attainment date of 2010. The District adopted the 2007 PM<sub>10</sub> Maintenance Plan in September 2007 to assure the San Joaquin Valley’s continued attainment of the EPA’s PM<sub>10</sub> standard. The EPA designated the valley as an attainment/maintenance area for PM<sub>10</sub> on September 25, 2008. Although the San Joaquin Valley has exceeded the standard since then, those days were considered exceptional events that are not considered a violation of the standard for attainment purposes.

The 2008 PM<sub>2.5</sub> Plan builds upon the comprehensive strategy adopted in the 2007 Ozone Plan to bring the Air Basin into attainment of the 1997 national standards for PM<sub>2.5</sub>. The EPA has identified NO<sub>x</sub> and sulfur dioxide as precursors that must be addressed in air quality plans for the 1997 PM<sub>2.5</sub> standards. The 2008 PM<sub>2.5</sub> Plan is a continuation of the District’s strategy to improve the air quality in the Air Basin. The EPA issued final approval of the 2008 PM<sub>2.5</sub> Plan on November 9, 2011, which became effective on January 9, 2012. The EPA approved the emissions inventory, the reasonably available control measures/reasonably available control technology demonstration, reasonable further progress demonstration, attainment demonstration and associated air quality modeling, and the transportation conformity motor vehicle emissions budgets. The EPA also granted California’s request to extend the attainment deadline for the San Joaquin Valley to April 5, 2015 and approved commitments to measures and reductions by the District and the ARB. Finally, it disapproved the State Implementation Plan’s contingency provisions and issued a protective finding for transportation conformity determinations.

In December 2012, the District adopted the 2012 PM<sub>2.5</sub> Plan to bring the San Joaquin Valley into attainment of the EPA’s 2006 24-hour PM<sub>2.5</sub> standard of 35 µg/m<sup>3</sup>. The ARB approved the District’s 2012 PM<sub>2.5</sub> Plan for the 2006 standard at a public hearing on January 24, 2013 (Valley Air District

2012). This plan seeks to bring the Valley into attainment with the standard by 2019, with the expectation that most areas will achieve attainment before that time.

The 2015 Plan for the 1997 PM<sub>2.5</sub> Standard, approved by the District Governing Board on April 16, 2015, will bring the Valley into attainment of EPA's 1997 PM<sub>2.5</sub> standard as expeditiously as practicable, but no later than December 31, 2020. The plan was required to request reclassification to Serious nonattainment and to extend the attainment date from 2018 to 2020 (Valley Air District 2015b).

#### *San Joaquin Valley Air Pollution Control District Rules and Regulations*

The Valley Air District rules and regulations that may apply to projects that will occur during buildout of the project include, but are not limited to the following:

**Rule 4102—Nuisance.** The purpose of this rule is to protect the health and safety of the public, and applies to any source operation that emits or may emit air contaminants or other materials.

**Rule 4601—Architectural Coatings.** The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.

**Rule 4641—Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations.** The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.

**Rule 4901—Wood Burning Fireplaces and Wood Burning Heaters.** The purposes of this rule are to limit emissions of carbon monoxide and particulate matter from wood burning fireplaces, wood burning heaters, and outdoor wood burning devices, and to establish a public education program to reduce wood burning emissions. All development that includes woodburning devices are subject to this rule.

**Regulation VIII—Fugitive PM<sub>10</sub> Prohibitions.** Rules 8011-8081 are designed to reduce PM<sub>10</sub> emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, etc. All development projects that involve soil disturbance are subject to at least one provision of the Regulation VIII series of rules.

**Rule 9510—Indirect Source Review.** This rule reduces the impact of NO<sub>x</sub> and PM<sub>10</sub> emissions from growth within the Air Basin. The rule places application and emission reduction requirements on development projects meeting applicability criteria in order to reduce emissions through on-site mitigation, off-site District-administered projects, or a combination of the two. This project must comply with Rule 9510 because it would develop more than 50 residential dwelling units.

#### **CEQA**

The District has three roles under CEQA:

1. *Lead Agency*: Responsible for preparing environmental analyses for its own projects (adoption of rules, regulations, or plans) or permit projects filed with the District where the District has primary approval authority over the project.
2. *Responsible Agency*: The discretionary authority of a Responsible Agency is more limited than a Lead Agency; having responsibility for mitigating or avoiding only the environmental effects of those parts of the project which it decides to approve, carry out, or finance. The District defers to the Lead Agency for preparation of environmental documents for land use projects that also have discretionary air quality permits, unless no document is prepared by the Lead Agency and potentially significant impacts related to the permit are possible. The District regularly submits comments on documents prepared by Lead Agencies to ensure that District concerns are addressed.
3. *Commenting Agency*: The District reviews and comments on air quality analyses prepared by other public agencies (such as the project).

The District also provides guidance and thresholds for CEQA air quality and GHG analyses. The result of this guidance, as well as state regulations to control air pollution, is an overall improvement in the Air Basin. In particular, the District's 2015 GAMAQI states the following:

1. The District's Air Quality Attainment Plans include measures to promote air quality elements in county and city general plans as one of the primary indirect source programs. The general plan is the primary long range planning document used by cities and counties to direct development. Since air districts have no authority over land use decisions, it is up to cities and counties to ensure that their general plans help achieve air quality goals. Section 65302.1 of the California Government Code requires cities and counties in the San Joaquin Valley to amend appropriate elements of their general plans to include data, analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality in their next housing element revisions.
2. The Air Quality Guidelines for General Plans (AQGGP), adopted by the District in 1994 and amended in 2005, is a guidance document containing goals and policy examples that cities and counties may want to incorporate into their General Plans to satisfy Section 65302.1. When adopted in a general plan and implemented, the suggestions in the AQGGP can reduce vehicle trips and miles traveled and improve air quality. The specific suggestions in the AQGGP are voluntary. The District strongly encourages cities and counties to use their land use and transportation planning authority to help achieve air quality goals by adopting the suggested policies and programs.

## Regional

### ***Stanislaus Council of Governments***

The Stanislaus Council of Governments (StanCOG) is the Metropolitan Planning Organization (MPO) for the Stanislaus region as designated by the federal government, the Regional Transportation Planning Agency (RTPA) as designated by the State of California, and the Local Transportation Authority (LTA). StanCOG is responsible for developing and updating a variety of transportation

plans, and for allocating the federal, state and local funds to implement them. While regional transportation planning is its primary role, issues that affect the entire region such as air quality are also part of what StanCOG does. StanCog works closely with the Valley Air District on the motor vehicle emission inventory used in the air quality attainment plans.

The 2018 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). The RTP/SCS includes the following Air Quality Goal:

Goal 6: Health and Safety. Operate and maintain the transportation system to ensure public safety and security; improve the health of residents by improving air quality, and provide more transportation options.

- Percent of new households within walking distance (0.5 mile) of a park
- Percent of a new low-income environmental justice (EJ) households within walking distance (0.5 mile) of a park
- EJ households as a percent of total households within 500 feet of a major roadway
- Meets Federal health-based emission budgets

The following summarizes the benefits RTP/SCS strategy

- Fewer acres of new development, less farmland converted, and a higher residential density.
- Fewer new local roadway lane miles.
- Lower CO<sub>2</sub> emissions per household of new development.
- Fewer overall vehicle trips and vehicle miles traveled, as well as a higher percentage of households within walking distance of a transit stop.
- Decrease in vehicle trip lengths, and a decrease in the proportion of individuals who drive alone.
- Higher percentage of total households within walking distance of a park.
- Higher proportion of multifamily/townhome development, and more affordable housing for single-family and multifamily options.
- Higher proportion of EJ and non-EJ households that are within walking distance of transit services (StanCog 2018).

## Local

### **City of Patterson**

#### *General Plan*

The City of Patterson General Plan (City of Patterson 2014) sets forth the following goal and policies relevant to air quality and greenhouse gases:

- **Goal T-4:** To consider air quality and noise impacts along with traffic flow efficiency when making decisions about improvements to existing roadways or the construction of new roadways.
- **Policy T-4.1:** Protection of neighborhoods from traffic impacts. To the extent feasible, the City shall provide for separation of residential and other noise-sensitive land uses from major roadways to reduce noise and air pollution impacts from traffic.
- **Goal AR-1:** To foster effective communication, cooperation, and coordination in developing and operating community and regional air quality programs.
- **Policy AR-1.1:** Source regulation. The City shall review development projects using criteria established by the San Joaquin Valley Unified Air Pollution Control District in order to minimize future increases in vehicle travel and to assist in implementing appropriate indirect source regulations adopted by the Air Pollution Control District.
- **Policy AR-1.2:** APCD cooperation. The City shall work with the San Joaquin Valley Unified Air Pollution Control District to ensure the earliest practicable attainment and subsequent maintenance of federal and state ambient air quality standards.
- **Policy AR-1.3:** CEQA. The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.
- **Policy AR-1.4:** Air quality mitigation. The City shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.
- **Policy AR-1.5:** Innovative strategies. The City shall encourage innovative mitigation measures to reduce air quality impacts by coordinating with the District, project applicants, and other interested parties.
- **Policy AR-1.7:** Neighboring jurisdictions. The City shall work with neighboring jurisdictions and affected agencies to address cross-jurisdictional and regional transportation and air quality issues.
- **Policy AR-1.9:** Air quality and planning. The City shall consider air quality when planning the land uses and transportation systems to accommodate the expected growth in this community.
- **Policy AR-1.14:** Public education. The City shall work to improve the public's understanding of the land use, transportation, and air quality link.
- **Goal AR-2:** To reduce the air quality impacts of motor vehicle use.
- **Policy AR-2.1:** Trip reduction programs. The City shall promote the implementation of innovative employer-based trip reduction programs for employees.
- **Policy AR-2.5:** Commute reduction. The City shall promote the expansion of employment opportunities in Patterson to reduce the volume and distance of home-to-work commute trips by motor vehicle.

- **Goal AR-3:** To Reduce traffic congestion and vehicle trips through more efficient infrastructure and support for trip reduction programs. Reduce the air quality impacts of motor vehicle use.
- **Policy AR-3.1:** Priority to existing roadways. The City shall consider measures to increase the capacity of the existing road network prior to constructing more capacity (additional lanes, new freeways, etc.).
- **Policy AR-3.2:** Promote alternate modes of travel. The City shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.
- **Policy AR-3.4:** Intersection design. Major intersections shall be designed to minimize situations (such as long vehicle delays) which can adversely affect localized air quality.
- **Goal AR-4:** Minimize exposure of the public to toxic air pollutant emissions and noxious odors from industrial, manufacturing, and processing facilities.
- **Policy AR-4.1:** Sensitive receptors. The City shall, to the extent practicable, separate sensitive land uses from significant sources of air pollutants or odor emissions. Sensitive land uses include, but are not limited to, those that support people or other organisms that may have a significantly increased sensitivity or exposure to air pollution by virtue of their age and health (e.g. schools, day care centers, hospitals, nursing homes), status (e.g. sensitive or endangered species), or proximity to the source. The City shall require residential development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources of toxic emissions such as freeways, major arterials, industrial sites, and hazardous material locations. For purposes of compliance with this policy, the City will be guided by the recommendations provided in the Air Quality and Land Use Handbook: A Community Health Perspective published by the California Air Resources Board.
- **Policy AR-4.1:** Industrial uses. The City shall notify, and coordinate with, the San Joaquin Valley Unified Air Pollution Control District when industrial developments are proposed that may adversely impact air quality. Such coordination may include, but is not limited to, providing assistance to applicants in complying with applicable air quality regulations.
- **Goal AR-5:** Reduce particulate emissions from sources under the jurisdiction of the city.
- **Policy AR-5.1:** Particulates from grading. The City shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.
- **Policy AR-5.2:** Roadways. The City shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.
- **Policy AR-5.3:** City maintained roads. The City shall reduce PM<sub>10</sub> emissions from City/County maintained roads to the maximum extent feasible.
- **Goal AR-6:** Reduce emissions related to energy consumption and area sources.

- Policy AR-6.1: Energy efficient design. The City shall work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.
- **Policy AR-6.2:** Energy conservation standards. The City shall cooperate with the local building industry, utilities and the District to promote enhanced energy conservation standards for new construction.
- **Policy AR-6.3:** Vehicle idling reduction. The City shall implement circulation improvements that reduce vehicle idling.
- **Goal AR-7:** To reduce to the emission of greenhouse gases and to promote energy efficiency.
- **Policy AR-7.1:** Climate Action Plan. The City shall comply with the relevant provisions of State law (i.e. AB 32 and SB 375) to minimize the effect of citywide greenhouse gas emissions associated with buildout of the General Plan. This shall be achieved through the implementation of a Climate Action Plan.
- **Policy AR-7.2:** Greenhouse gas reduction goal. The City shall work with the Air Resources Board and the San Joaquin Valley Unified Air Pollution Control District to comply with statewide greenhouse gas reduction goals as established in the Global Warming Solutions Act of 2006 (AB 32) for 2020, and subsequent goals.
- **Policy AR-7.3:** Greenhouse gas emissions from new development. The City shall implement measures to reduce the emission of greenhouse gases from new development. Such measures may include, but are not limited to, the following:
  - a. Discouraging auto-dependent patterns of development;
  - b. Promoting compact, mixed-use, pedestrian-friendly, and transit oriented development;
  - c. Promoting energy-efficient building design and site planning using either Build It Green and LEED™ Silver standards for residential and non-residential buildings, respectively; and
  - d. Working to improve the ratio of jobs to housing.
- **Policy AR-7.4:** Passive solar heating. To the extent feasible, the City shall require the orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain in warm seasons, enhance natural ventilation and effective use of daylight, and to maximize opportunities for the installation of solar panels.

### 3.3.4 - Methodology

The methodology follows the GAMAQI, which sets forth recommended thresholds of significance, analysis methodologies, and provides guidance on mitigating significant impacts.

The analysis that follows was prepared using a variety of data sources and air quality models. The Traffic Impact Study for the project, prepared by Advanced Mobility Group was used to obtain trip generation rates and level of service estimates to determine if a CO Hotspot Analysis would be needed. ITE 10<sup>th</sup> edition average daily trip generation rates were used to model operational motor vehicle emissions.

The CalEEMod 2016 model (version 3.2) was used to quantify construction-and operational emissions generated by the project. CalEEMod is a California-specific computer model that is owned and maintained by the local air pollution control districts and air quality management districts in the State of California. CalEEMod estimates construction, area source, and operational emissions from potential land uses, using the most recent approved version of relevant ARB emissions models and emission factors and/or District specific emission factors; and estimates emissions reductions. CalEEMod is recommended for use by the Valley Air District for estimating project emissions.

A 20-year buildout schedule was used for the analysis. Construction was assumed to occur at a steady rate for the residential, commercial, and industrial components. This allowed for the development of average annual construction estimates for these components. The CalEEMod default equipment list was adjusted to retain default hours of equipment use within each year of construction. The project also includes school and park sites that were assumed to be constructed as discrete projects. The emissions from these projects were added to the average rate to determine the maximum annual emissions for comparison to Valley Air District annual thresholds.

The Baldwin Master Plan was analyzed as part of the full Baldwin Zacharias Master Plan project and with a separate analysis of the Baldwin Master Plan. The separate Baldwin analysis was prepared to identify the impacts of only that component for information purposes only. Significance determinations were made based on the impacts of the combined projects.

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix overstates the percentage of heavy-duty trucks for most commercial and industrial projects. Actual numbers of truck deliveries vary greatly depending on the actual use of individual project sites. Therefore, the default fleet mix provides a highly conservative result. Site specific modeling for actual uses would be expected to result in lower emissions. The Valley Air District developed a Residential Fleet Mix with fewer heavy-duty trucks that was used for the residential analysis. Additional details regarding modeling assumptions is provided in the Air Quality Appendix.

Detailed methodology is described in each of the Impact sections below.

### **3.3.5 - Thresholds of Significance**

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines effective December 28, 2018. A significant impact would occur if the project would:

- a) Conflict with or obstruct implementation of the applicable air quality plan?

- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- c) Expose sensitive receptors to substantial pollutant concentrations?
- d) Create objectionable odors affecting a substantial number of people?

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the District recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable District thresholds and methodologies are contained under each impact statement below.

### 3.3.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed project and provides mitigation measures where appropriate.

#### Consistency with Air Quality Plan

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<b>Impact AIR-1:</b>	<b>Buildout of the Master Plans may conflict with or obstruct implementation of the applicable air quality plan.</b>
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#### *Impact Analysis*

The GAMAQI indicates that projects that do not exceed Valley Air District regional criteria pollutant emissions quantitative thresholds would not conflict with or obstruct the applicable air quality plan (AQP). Additional criteria regarding consistency with AQP assumptions, and the project's implementation of control measures were assessed to provide further evidence of the project's consistency with current AQPs. This document proposes the following criteria for determining project consistency with the current AQPs:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs? This measure is determined by comparison to the regional and localized thresholds identified by the District for Regional and Local Air Pollutants.
2. Will the project conform to the assumptions in the AQPs?
3. Will the project comply with applicable control measures in the AQPs?

The use of the criteria listed above is a standard approach for CEQA analysis of projects in the District's jurisdiction, as well as within other air districts, for the following reasons:

- Significant contribution to existing or new exceedances of the air quality standards would be inconsistent with the goal of attaining the air quality standards.

- AQP emissions inventories and attainment modeling are based on growth assumptions for the area within the air district’s jurisdiction.
- AQPs rely on a set of air district-initiated control measures as well as implementation of federal and state measures to reduce emissions within their jurisdictions, with the goal of attaining the air quality standards.

AQPs are plans for reaching attainment of air quality standards. The assumptions, inputs, and control measures are analyzed to determine if the Air Basin can reach attainment for the ambient air quality standards. In order to show attainment of the standards, the District analyzes the growth projections in the valley, contributing factors in air pollutant emissions and formations, and existing and adopted emissions controls. The District then formulates a control strategy to reach attainment that includes both State and District regulations and other local programs and measures.

#### *Contribution to Air Quality Violations*

A measure of determining if the project is consistent with the air quality plans is if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the air quality plans. Because of the region’s nonattainment status for ozone, PM<sub>2.5</sub>, and PM<sub>10</sub>, if project-generated emissions of either of the ozone precursor pollutants (ROG and NO<sub>x</sub>), PM<sub>10</sub>, or PM<sub>2.5</sub> would exceed the District’s significance thresholds, then the project would be considered to conflict with the attainment plans.

As discussed in Impact AIR-2 below, emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> associated with the construction and operation of the project would exceed the District’s significance thresholds. As shown in Impact AIR-3, the TVDP would not result in CO hotspots that would violate CO standards. Therefore, the project would contribute to air quality violations.

#### *Consistency with Assumptions in AQPs*

A second test for determining consistency with the AQP’s assumptions is determining consistency with the applicable General Plan to ensure that the project’s population density and land use are consistent with the growth assumptions used in the AQPs for the Air Basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and designates locations for land uses to regulate growth. StanCOG uses the growth projections and land use information in adopted general plans, among other sources, to estimate future average daily trips and then vehicle miles traveled (VMT), which are then provided to the District to estimate future mobile source emissions in the AQPs. The population growth and VMT projections were last updated in 2018 for use in preparing the 2018 RTP/SCS. The RTP/SCS forecasts an 80 percent increase in population between 2015 and 2042 (18,398 people) in the City of Patterson, which is the highest for any city in Stanislaus County. The project would accommodate an increase of 19,988 new residents in 20 years which would exceed RTP/SCS growth forecast. AQPs identify the control measures and emission reductions required for reaching attainment of the air standards based on these growth and emission estimates. Federal Transportation Conformity

requirements ensure that the region stays within emission budgets included in the applicable air quality plans. The 2019 Conformity Analysis for the 2019 Federal Transportation Improvement Plan (FTIP) Amendment #9 and 2018 RTP Amendment #1 found that the region passed the required conformity tests. If the project is approved it would be incorporated into the next conformity analysis to ensure that the growth remains consistent with the emission budgets.

The applicable General Plan for the project is the City of Patterson General Plan, which was adopted in 2010, prior to the District's adoption of the applicable AQPs. The General Plan is amended up to four times per year to allow changes to the planned land use and other plan elements as needed to accommodate development proposals that are not currently consistent with the General Plan. The changes in land use are then incorporated into the modeling assumptions of the regional transportation model on a periodic basis. Therefore, since the project's population growth and VMT are not currently included in the General Plan, the project is not consistent with the growth assumptions used in the applicable AQPs. However, the designation of additional land for development does not necessarily increase growth in the region since it could just result in a shift in growth from other areas the City or County.

The project site provides a mix of development densities and employment opportunities for future residents that is consistent with the overall goals of the General Plan and the RTP/SCS to improve the jobs housing balance and to provide infrastructure that supports a multimodal transportation system. The General Plan goals and policies listed in Section 3.3.3 – Local will help to mitigate project air quality impacts and achieve consistency with the applicable AQPs.

#### *Control Measures*

The AQP contains a number of control measures, which are enforceable requirements through the adoption of rules and regulations. A detailed description of rules and regulations that apply to this project is provided in Section 2.2, Regulatory Setting. The project would comply with all applicable District rules and regulations. Therefore, the project complies with this criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plan for this criterion.

#### **Impact Summary**

Project emissions would exceed Valley Air District regional criteria pollutant significance thresholds; therefore, the project could result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards. Therefore, the project would result in a significant impact based on this criterion. The project proposes growth that would exceed the amounts assumed in the applicable AQP; therefore, the project would result in a significant impact based on this criterion. The project would comply with the applicable AQP control measures; therefore, the project would be less than significant for this criterion.

Mitigation measures to reduce impacts to the applicable AQP are included under Impact Air-2 but they would not reduce the impact to less than significant levels.

### **Level of Significance Before Mitigation**

Potentially significant impact.

### **Mitigation Measures**

See mitigation measures for Impact AIR-2.

### **Level of Significance After Mitigation**

Significant impact.

## **Cumulative Criteria Pollutant Emissions Impacts**

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<b>Impact AIR-2:</b>	<b>Buildout of the Master Plans may 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.</b>
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### **Impact Analysis**

#### *Regional Emissions*

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to Valley Air District thresholds of significance for short-term construction activities and long-term operation of the project.

The primary pollutants of concern during project construction and operation are ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The Valley Air District GAMAQI adopted in 2015 contains thresholds for CO, NO<sub>x</sub>, ROG, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

Ozone is a secondary pollutant that can be formed miles from the source of emissions, through reactions of ROG and NO<sub>x</sub> emissions in the presence of sunlight. Therefore, ROG and NO<sub>x</sub> are termed ozone precursors. The Air Basin often exceeds the state and national ozone standards. Therefore, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. The Air Basin also exceeds air quality standards for PM<sub>10</sub>, and PM<sub>2.5</sub>; therefore, substantial project emissions may contribute to an exceedance for these pollutants. The District's annual emission significance thresholds used for the project define the substantial contribution for both operational and construction emissions as follows:

- 100 tons per year CO
- 10 tons per year NO<sub>x</sub>
- 10 tons per year ROG
- 27 tons per year SO<sub>x</sub>
- 15 tons per year PM<sub>10</sub>
- 15 tons per year PM<sub>2.5</sub>

The project does not contain sources that would produce substantial quantities of SO<sub>2</sub> emissions during construction and operation. Modeling conducted for the project show that SO<sub>2</sub> emissions are well below the Valley Air District GAMAQI thresholds, as shown in the modeling results contained in Appendix B. No further analysis of SO<sub>2</sub> is required.

**Construction Emissions**

The analysis is expected to take place over 20 years. Buildout of the residential, commercial, and industrial components were assumed to occur at a steady rate over 20 years. This allowed the determination of the average annual rate of construction. Schools and parks were assumed to be discrete projects that are in addition to the average rate of construction. The highest year of construction for the schools and parks was added to average annual construction emissions to determine the maximum annual construction emissions. The maximum annual construction emissions associated with the project are shown in Table 3.3-5. For assumptions in estimating the emissions, please refer to Appendix C. As shown in Table 3.3-5, the average annual emissions exceed the significance thresholds for NOx after accounting for reductions required by Rule 9510 ISR. Therefore, project construction emissions would result in a significant impact.

**Table 3.3-5: Construction Air Pollutant Emissions Baldwin / Zacharias Master Plan (Maximum Annual)**

Project Component	Emissions (tons per year)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Residential	2.24	9.28	8.26	1.25	0.79
Commercial/Industrial	1.85	5.32	4.56	0.76	0.39
Schools	0.38	3.35	3.27	0.67	0.30
Parks	0.21	2.05	1.50	0.56	0.26
<b>Total</b>	<b>4.68</b>	<b>20.00</b>	<b>17.59</b>	<b>3.24</b>	<b>1.73</b>
Total with Rule 9510 ISR Reduction (20% NO <sub>x</sub> , 45% PM <sub>10</sub> exhaust)	<b>4.68</b>	<b>16.00</b>	<b>17.59</b>	<b>3.79</b>	<b>1.73</b>
Significance threshold (tons/year)	10	10	100	15	15
Exceed threshold—significant impact?	No	Yes	No	No	No
Notes: PM <sub>10</sub> and PM <sub>2.5</sub> emissions are from the mitigated output to reflect compliance with Regulation VIII—Fugitive PM <sub>10</sub> Prohibitions. ROG = reactive organic gases NO <sub>x</sub> = nitrogen oxides PM <sub>10</sub> and PM <sub>2.5</sub> = particulate matter Totals calculated using unrounded numbers. Source: CalEEMod Output (Appendix B).					

A separate analysis was prepared for the annual construction impacts of only the Baldwin Master Plan area. The analysis uses CalEEMod default assumptions for duration and construction equipment use. The results of the analysis are provided in Table 3.3-6.

**Table 3.3-6: Construction Air Pollutant Emissions Baldwin Master Plan (Annual)**

Year	Emissions (tons per year)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
2021	0.45	4.55	3.30	1.12	0.61

Year	Emissions (tons per year)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
2022	0.29	2.52	2.58	0.25	0.14
2023	0.26	2.26	2.52	0.23	0.13
2024	0.25	2.14	2.50	0.23	0.12
2025	0.21	1.85	2.36	0.19	0.10
2026	2.26	0.18	0.31	0.02	0.01
<b>Total</b>	<b>2.26</b>	<b>4.55</b>	<b>3.30</b>	<b>1.12</b>	<b>0.61</b>
Significance threshold (tons/year)	10	10	100	15	15
Exceed threshold—significant impact?	No	No	No	No	No
Notes: PM10 and PM2.5 emissions are from the mitigated output to reflect compliance with Regulation VIII—Fugitive PM10 Prohibitions. ROG = reactive organic gases NO <sub>x</sub> = nitrogen oxides PM10 and PM2.5 = particulate matter Totals calculated using unrounded numbers. Source: CalEEMod Output (Appendix B).					

Emissions from the Baldwin Master Plan would not exceed Valley Air District annual construction thresholds when assessed as a separate project.

The proposed project would exceed the Valley Air District thresholds for NO<sub>x</sub> during construction. Other pollutants are less than significant. Compliance with Valley Air District Rule 9510 would reduce construction NO<sub>x</sub> by 20 percent which is insufficient to reduce the emissions to less than significant. Use of construction equipment that is cleaner than required to meet Rule 9510 reduction levels would provide additional reductions. An analysis was prepared using only equipment meeting EPA Tier 4 standards. Emissions would remain significant with Tier 4 equipment. Currently construction contractors may not have access to sufficient quantities of Tier 4 equipment making this measure infeasible. Over the 20-year construction period, older equipment will be replaced with Tier 4 models or retrofitted with control devices meeting the latest standards thereby reducing this problem. In addition, some equipment powered by electricity may be developed that is capable of performing work currently accomplished only with diesel equipment. Since the availability of sufficient quantities of Tier 4 diesel equipment is uncertain, requiring use of such equipment is not currently feasible. The following mitigation measure is proposed to ensure that contractors prepare a construction plan that commits to using owned and rented equipment that is the best available. Developers often select construction contractors very near the start of construction. Therefore, requirements to use clean construction equipment should be identified in requests for proposals, and bid documents to ensure contractors factor in the cost of providing Tier 4 compliant equipment and require justification for use of fleets that are unable to use Tier 4 equipment. Example justification could include a letter from the contractor with number and type of equipment and the Tier level for company owned equipment and expected availability of Tier 4 rental equipment from rental company used by the contractor. Equipment available on any given day will vary, so flexibility is required to avoid disrupting construction operations. The following mitigation measure is proposed to reduce this impact to the extent feasible.

MM AIR-3a: Prior to the issuance of grading permits, the applicant shall provide the City of Patterson with a plan demonstrating a good faith effort was made to obtain off-road equipment meeting Tier 4 standards.

No other measures are available to reduce construction equipment emissions to less than significant. Therefore, this impact will be significant and unavoidable after mitigation.

**Operational Emissions**

Operational emissions occur over the lifetime of the project and are from three main sources: area sources, energy use, and motor vehicles, or mobile sources. Operational emissions are shown in Table 3.3-6. The project was assumed to be built out in 20 years. For modeling purposes, the year 2040 was used to reflect the cumulative impact of the entire project. Separate model runs were prepared for residential land uses, commercial and industrial land use, schools, and parks. The emissions from each model run are combined to provide the maximum project emissions for the Baldwin Master Plan and Zacharias Master Plan. In this case the maximum impact would occur at buildout. A separate model run was prepared for the Baldwin Master Plan for informational purposes. The Valley Air District considers construction and operational emissions separately when making significance determinations.

For assumptions in estimating the emissions, please refer to Appendix B. The emissions output for project operation are summarized in Table 3.3-6. Please note that these results are the “unmitigated” results in CalEEMod. The project will comply with Rule 9510 Indirect Source Review mitigation requirements. ISR requires a 33 percent reduction in NO<sub>x</sub> and a 50 percent reduction in PM<sub>10</sub> from the unmitigated baseline. The amount after compliance with Rule 9510 represents mitigated emissions.

As shown in Table 3.3-7, the emissions exceed the District significance thresholds and, therefore, would result in a significant impact.

**Table 3.3-7: Combined Operational Air Pollutant Emissions at Buildout**

Source	Emissions (tons per year)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Residential	50.14	36.40	259.23	70.25	37.75
Commercial/Industrial	41.38	116.37	78.83	48.87	13.53
Elementary School	0.30	0.45	0.83	0.56	0.15
Middle School	0.70	0.95	1.83	1.17	0.32
Parks	0.18	0.49	1.56	0.35	0.10
<b>Total</b>	<b>92.70</b>	<b>154.66</b>	<b>342.29</b>	<b>121.20</b>	<b>51.85</b>
Total with Reduction from Rule 9510 ISR	<b>92.70</b>	<b>103.10</b>	<b>342.29</b>	<b>60.60</b>	<b>51.85</b>
Significance threshold	10	10	100	15	15

Source	Emissions (tons per year)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Exceed threshold—significant impact?	Yes	Yes	Yes	Yes	Yes
Notes: ROG = reactive organic gases      NO <sub>x</sub> = nitrogen oxides      PM <sub>10</sub> and PM <sub>2.5</sub> = particulate matter Area source emissions include emissions from natural gas, landscape, and painting. Source: Appendix C.					

The project requires mitigation measures to reduce emissions to the extent feasible. As was shown in Table 3.3-7, the project would exceed the thresholds for each pollutant by substantial amounts after application of reductions that will be achieved through compliance with Rule 9510 – Indirect Source Review. No changes to project design or on-site mitigation measures would achieve reductions greater than achieved by Rule 9510. ISR provides credit for on-site measures prior to determining mitigation fees that are used to fund off-site emission reduction projects.

The Valley Air District typically recommends use of what is termed as a Voluntary Emission Reduction Agreement (VERA) to fund additional off-site emission reduction projects when projects exceed Valley Air District thresholds. Although a number of applicants have entered into VERAs with the District, they are becoming increasingly difficult to implement and manage as time passes. The project has a 20-year development timeline. Each year fewer emission reduction projects are available to fund due to several factors. Reductions must be surplus to those required by regulations. As regulations become increasingly stringent, fewer surplus reductions will be available and the cost per ton of reduction increases. The emission differential between regulated sources and sources equipped with technology that exceeds regulations becomes smaller, thus providing fewer reductions. The District VERAs include a mitigation fee estimate, but do not guarantee a fixed mitigation fee amount. This requires the applicants to assume risk of cost increases that are highly likely to escalate with time. This is akin to requiring someone to commit to purchasing something 10 or 20 years in the future without knowing what it will cost. Finally, the added cost of funding a VERA places the project at a competitive disadvantage with most other projects that comply only with Rule 9510 or that have no air mitigation requirements as is generally the case in other parts of California. Furthermore, VERA’s discourage comprehensive master planning for large areas with superior designs and development patterns and encourage small scale tract by tract development with fewer opportunities for integrated community design.

A separate model run was prepared for the Baldwin Master Plan to estimate the emissions that would be generated by only the Baldwin Master Plan area. The results of the modeling are presented in Table 3.3-8. The Baldwin Master Plan area when analyzed separately would not exceed Valley Air District thresholds for any pollutant.

**Table 3.3-8: Baldwin Master Plan Operational Air Pollutant Emissions at Buildout**

Source	Emissions (tons per year)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Operational Emission (Unmitigated)	4.17	2.58	19.08	5.18	2.89
Total with Reduction from Rule 9510 ISR	<b>4.17</b>	<b>1.72</b>	<b>19.08</b>	<b>2.59</b>	<b>2.89</b>
Significance threshold	10	10	100	15	15
Exceed threshold—significant impact?	No	No	No	No	No
Notes: ROG = reactive organic gases NO <sub>x</sub> = nitrogen oxides PM <sub>10</sub> and PM <sub>2.5</sub> = particulate matter Area source emissions include emissions from natural gas, landscape, and painting. Source: Appendix B.					

**Project Health Impacts**

In the 5<sup>th</sup> District Court of Appeal case *Sierra Club v. County of Fresno (Friant Ranch, L.P.)*, the Court found the project EIR deficient because it did not identify specific health-related effects resulting from the estimated amount of pollutants generated by the project. The ruling stated that the EIR should give a “sense of the nature and magnitude of the ‘health and safety problems’ caused by a project’s air pollution. The EIR should translate the emission numbers into adverse impacts or to understand why such translation is not possible at this time (and what limited translation is, in fact, possible).”

The standard measure of the severity of impact is the concentration of pollutant in the atmosphere compared to the ambient air quality standard for the pollutant for a specified period of time. The severity of the impact increases with the concentration and the amount of time that people are exposed to the pollutant. The number of days that concentrations exceed standards and the highest concentrations recorded during the last three years are listed in Table 3.3.2. This level should be considered the maximum exposure of people in the region to unhealthy pollutant concentrations.

Emissions throughout the San Joaquin Valley are projected to markedly decline in the coming decade. The Valley Air District 2016 Ozone Plan predicts NO<sub>x</sub> emissions will decline to 103 tons per day by 2029 or 54 percent from 2019 levels through implementation of control measures included in the plan. This means that ozone health impacts to residents of the San Joaquin Valley will be lower than currently experienced and most areas of the San Joaquin Valley will have attained ozone air quality standards. The plan accounts for growth in population at rates projected by the State of California for the San Joaquin Valley, so only cumulative projects that would exceed regional growth projections would potentially delay attainment and prolong the time and the number of people would experience health impacts. It is unlikely that anyone would experience greater impacts from regional emissions than currently occur. The federal transportation conformity regulation provides a means of ensuring growth in emissions does not exceed emission budgets for each County. Regional Transportation Plans and Regional Transportation Improvement Plans must provide a conformity analysis based on the latest planning assumptions that demonstrates that budgets will be not be

exceeded. If budgets are exceeded, the San Joaquin Valley may be subject to Clean Air Act sanctions until the deficiency is addressed. Although the project is relatively large, it would absorb growth already projected for the region over a 20-year period. People living in the air basin would not experience increased health impacts due to the project. However, without growth, emissions would decline more rapidly thus reducing the current health impacts more rapidly.

Some air quality modelers have attempted to determine an amount of illness or deaths due to differences in emission concentrations using photochemical grid modeling with the CAMx model and the EPA model BenMap for health outcomes, but the level of uncertainty of the results is high. Each step in the modeling process requires estimates with their own level of uncertainty that makes the results statistically questionable. No analysis has been accomplished to date to determine if the margin of error is such that no conclusions should be drawn from the results.

The pollutants of concern in the Friant Ranch ruling were regional criteria pollutants ozone, and PM<sub>10</sub>. It is important to note that the potential for localized impacts can be addressed through dispersion modeling. The Valley Air District includes screening criteria that if exceeded would require dispersion modeling to determine if project emissions would result in a significant health impact. For this project, the screening criteria would not be exceeded so no significant localized health impacts are expected to occur. Regional pollutants require more complex modeling as described below.

Ozone concentrations are estimated using regional photochemical models because ozone formation is subject to temperature, inversion strength, sunlight, emissions transport over long distances, dispersion, and the regional nature of the precursor emissions. The emissions from individual projects are too small to produce a measurable change in ozone concentrations – it is the cumulative contribution of emissions from existing and new development that is accounted for in the photochemical model. Ozone concentrations vary widely throughout the day and year even with the same amount of daily emissions. The Valley Air District indicated in an Amicus Brief on Friant Ranch that running the photochemical model with just Friant Ranch emissions (109.5 tons/year NO<sub>x</sub>) is not likely to yield valid information given the relative scale involved. The NO<sub>x</sub> inventory for the San Joaquin Valley is 224 tons per day in 2019 or 81,760 tons per year. Friant Ranch would result in 0.13 percent increase in NO<sub>x</sub> emissions. The Baldwin / Zacharias Master Plan would emit 103 tons per year of NO<sub>x</sub> which is close to the amounts emitted by the Friant Ranch project. Most project emissions are generated by motor vehicle travel distributed on regional roadways miles from the project site, and these emissions are not conducive to project-level modeling.

Particulate emission impacts can be localized and regional. Particulates can be directly emitted and can be formed in the atmosphere with chemical reactions. Small directly emitted particles such as diesel emissions and other combustion emissions can remain in the atmosphere for a long time and can be transported over long distances. Large particles such as fugitive dust tend to be deposited a short distance from where emitted but can also travel long distances during periods of high winds. Particulates can be washed out of the atmosphere by rain and deposited on surfaces. Secondary particulates formed in the atmosphere such as ammonium nitrate require NO<sub>x</sub> and ammonia, and they require low inversion levels and certain ranges of temperature and humidity to result in substantial concentrations. These complications make modeling project particulate emissions to determine concentration feasible only for directly emitted particles at receptor locations close to the

project site. Regional particulate concentrations in the San Joaquin Valley are modeled using a gridded inventory (emissions in tons/day are placed a 4-kilometer, three-dimensional grid to spatially allocate the emissions geographically and vertically in the atmosphere) and an atmospheric chemistry component to simulate the chemical reactions. The model uses relative reduction factors to determine the amount of reductions of each PM component will be needed to attain the air quality standards on the days with the conditions most favorable to high particulate concentrations. A small project would not produce sufficient emissions to determine a project's individual contribution to the particulate concentration.

### ***Cumulative Health Impacts***

The Air Basin is in nonattainment for ozone, PM<sub>10</sub> (State only), and PM<sub>2.5</sub>, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (such as children, the elderly, and the infirm). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population would experience health effects that were described in Table 3.3-1. However, the health effects are a factor of the dose-response curve. Concentration of the pollutant in the air (dose), the length of time exposed, and the response of the individual are factors involved in the severity and nature of health impacts. If a significant health impact results from project emissions, it does not mean that 100 percent of the population would experience health effects. Table 3.3-2, and Table 3.3-4 relate the pollutant concentration experienced by residents using air quality data for the nearest air monitoring station to the health impacts ascribed to those concentrations by the EPA Air Quality Index. This provides a more detailed look at the actual impacts currently experienced by area residents.

Since the Basin is nonattainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, it is considered to have an existing significant cumulative health impact without the project. When this occurs, the analysis considers whether the project's contribution to the existing violation of air quality standards is cumulatively considerable. The Valley Air District regional thresholds for NO<sub>x</sub>, VOC, PM<sub>10</sub>, or PM<sub>2.5</sub> are applied as cumulative contribution thresholds. Projects that exceed the regional thresholds would have a cumulatively considerable health impact. As shown in Table 3.3-5 and Table 3.3-6 the regional analysis of construction and operational emissions indicates that the project would exceed the District's significance thresholds; therefore, the project is not consistent with the applicable Air Quality Plan.

### ***Impact Summary***

Project emissions would exceed annual construction emissions for NO<sub>x</sub> after compliance with Rule 9510 – ISR. A mitigation measure has been included for contractors to utilize the lowest emitting construction equipment available. The project would exceed Valley Air District operational emissions thresholds for all criteria pollutants except for SO<sub>x</sub>. Compliance with Rule 9510 – ISR would reduce emissions of NO<sub>x</sub> and PM<sub>10</sub> to the extent feasible. ROG, CO, and PM<sub>10</sub> reductions will be achieved by requiring natural gas hearths for homes that include fireplaces. The General Plan encourages measures to reduce VMT such as Transportation Demand Management (TDM), ridesharing, transit service, and bicycle paths and lanes. Rule 9510 allows credit for projects utilizing these measures. The emission reductions that can be achieved by these measures are included in the reductions

required by Rule 9510 and mitigation fees are based on the emissions remaining after accounting for the on-site measures. Therefore, the amounts required by Rule 9510 represent the total reductions from all measures.

### ***Level of Significance Before Mitigation***

Significant Impact

### ***Mitigation Measures***

**MM AIR-3a** Prior to the issuance of grading permits, the applicant shall provide the City of Patterson with documentation demonstrating a good faith effort was made to obtain off-road equipment meeting Tier 4 standards

**MM AIR-3b** All hearths and fireplaces shall utilize natural gas. No woodburning hearths are allowed in the Master Plan area.

### ***Level of Significance After Mitigation***

Significant and Unavoidable Impact

### **Sensitive Receptors Exposure to Pollutant Concentrations**

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**Impact AIR-3:** Buildout of the Master Plans may expose sensitive receptors to substantial pollutant concentrations.

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### ***Impact Analysis***

Localized emissions from project construction and operation are assessed using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

### ***Sensitive Receptors***

Those who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. The District considers a sensitive receptor a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The Zacharias Master Plan area includes existing sensitive receptors in rural residences located in the area west of Highway 33 and Ward Avenue Baldwin and east of the Patterson Irrigation District canal. Sensitive receptors are also located in single family residential development along the southern boundary of the Master Plan. The sensitive receptors nearest to the Baldwin Master Plan area are located in a single-family subdivision northeast of the site. Proposed residences and schools included as part of the project would be considered sensitive receptors once occupied.

### ***Off-site Sensitive Receptors***

Impacts to receptors located outside the project boundaries would occur during project construction. Construction emissions were assumed to commence with the year 2021 and continue for 20 years until project buildout. For large Master Plan projects, construction activities are

assumed to occur incrementally. The individual projects implementing the Master Plans would be of similar size and rates to projects that occur in other parts of the City of Patterson. Modeling of individual projects representing typical development that would occur at any location within the Master Plan was conducted to determine if impacts would exceed Valley Air District localized emission screening criteria. The modeling used default construction schedules and equipment usage for residential, commercial, industrial, and school projects. For criteria pollutants, impacts to receptors are based on emissions during the highest emissions during any construction year. As shown in Table 3.3-7, emissions generated from project construction are less than Valley Air District screening criteria. Therefore, this impact would be less than significant. The Zacharias Master Plan includes areas devoted to light industrial and warehouse uses that have the potential to generate criteria pollutants and TAC emissions from trucks and stationary sources. The industrial and warehouse development areas are located northwest of existing single-family residential development.

### ***On-site Sensitive Receptors***

Once construction commences, the first residences and schools completed will become sensitive receptor locations. The same analysis used for off-site receptors would apply to future on-site receptors adjacent to later development. Emissions would not exceed the Valley Air District screening thresholds during construction.

The Zacharias Master Plan area devoted to light industrial and warehouse development is located west of areas that will eventually be developed with residences. The future on-site residences could be exposed to the same industrial and truck emissions identified for off-site receptors. On-site receptors could also be exposed to emissions generated at commercial development areas from delivery trucks or gas stations.

### ***Construction: ROG***

ROG is emitted during the application of architectural coatings (painting). The amount emitted is dependent on the amount of ROG (or VOC) in the paint. ROG emissions are typically an indoor air quality health hazard concern rather than an outdoor air quality health hazard concern. Therefore, exposure to ROG during architectural coatings is a less than significant health impact.

There are three types of asphalt that are typically used in paving: asphalt cements, cutback asphalts, and emulsified asphalts. However, Valley Air District Rule 4641 prohibits the use of the following types of asphalt: rapid cure cutback asphalt; medium cure cutback asphalt; slow cure asphalt that contains more than one-half (0.5) percent of organic compounds that evaporate at 500 degrees Fahrenheit (°F) or lower; and emulsified asphalt containing organic compounds, in excess of 3 percent by volume, that evaporate at 500°F or lower. An exception to this is medium cure asphalt when the National Weather Service official forecast of the high temperature for the 24-hour period following application is below 50°F.

The acute (short-term) health effects from worker direct exposure to asphalt fumes include irritation of the eyes, nose, and throat. Other effects include respiratory tract symptoms and pulmonary function changes. The studies were based on occupational exposure of fumes. Residents are not in the immediate vicinity of the fumes; therefore, they would not be subjected to concentrations high

enough to evoke a negative response. In addition, the restrictions that are placed on asphalt in the San Joaquin Valley reduce ROG emissions from asphalt and exposure. The impact to nearby sensitive receptors from ROG during construction would be less than significant.

### **Localized Pollutant Screening Analysis**

Emissions occurring at or near the project have the potential to create a localized impact, also referred to as an air pollutant hotspot. Localized emissions are considered significant if, when combined with background emissions, they would result in exceedance of any health-based air quality standard. The impact from localized pollutants is based on the impact to the nearest sensitive receptor.

The Valley Air District's GAMAQI includes screening thresholds for identifying projects that need detailed analysis for localized impacts. Projects with on-site emission increases from construction activities or operational activities that exceed the 100 pounds per day screening level of any criteria pollutant after compliance with Rule 9510 and implementation of all enforceable mitigation measures would require preparation of an ambient air quality analysis. The criteria pollutants of concern for localized impact in the Air Basin are PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and CO. There is no localized emission standard for ROG and most types of ROG are not toxic and have no health-based standard; however, ROG was included for informational purposes only.

### **Construction**

The Baldwin Master Plan area includes 305 single family dwelling units on a 65.9-acre site. The Zacharias Master Plan include a 22-acre community commercial site with 350,000 square feet of development, and two school sites (a 900-student middle school on 16 acres and a 500-student elementary school on 14 acres). No specific sites are identified for industrial and warehouse uses. In that case, a commonly built 500,000 square foot warehouse project on a 23-acre site was used to determine maximum daily emissions. With this information CalEEMod model runs were prepared using default modeling assumptions to represent typical projects that will implement the Master Plans. The maximum daily emission rates occur during the grading phase for all pollutants except ROG. The maximum daily emission rate for ROG occurs during application of architectural coatings.

The limiting pollutant for daily construction impacts is NO<sub>x</sub>. The highest emissions for the individual projects are 46.5 pounds per day compared to the 100 pounds per day screening threshold. CalEEMod default assumptions increase the number of days required for grading as the size of the project increases. Therefore, the size of the individual project makes little difference in daily emissions since the emissions are spread over more days. If an actual individual project accelerated its construction schedule by using more than the default amount of equipment, the amount used could be more than doubled without exceeding the screening threshold. Therefore, the potential impact on sensitive receptors from project construction emissions is less than significant.

The results of the construction screening analysis are presented in Table 3.3-9.

**Table 3.3-9: Maximum Daily Air Pollutant Emissions During Construction**

Source	Emissions (pounds per day)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Residential Project	59.78	46.46	31.46	20.26	11.85
Shopping Center Project	118.67	46.45	31.69	8.34	4.57
Industrial Warehouse Project	161.64	45.45	33.58	8.34	4.57
Middle School Project	44.61	34.56	28.62	8.34	4.57
Maximum Daily Construction Emissions	<b>161.64</b>	<b>46.46</b>	<b>33.58</b>	<b>20.26</b>	<b>11.58</b>
Screening threshold	-	100	100	100	100
Exceed screening threshold?	NA	No	No	No	No
<p>Notes: Emissions are essentially the same for the summer and winter modeling runs. ROG has no concentration-based standard; therefore, no localized exceedance could occur.</p> <p>CO = carbon monoxide      NO<sub>x</sub> = nitrogen oxides      CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter      N/A—Not applicable Source: Modeling Results (Appendix C).</p>					

**Operation**

An analysis of maximum daily emissions during operation was conducted to determine if emissions would exceed 100 pounds per day for any pollutant of concern. The maximum daily operational emissions for the same four typical projects assessed for the construction analysis. The projects were modeled assuming operations would commence in 2022 except for the school project that would commence operations in 2024. Emissions per unit of activity are highest during the early years of operation because emissions decline over time as new less pollutant vehicles replace older models. Operational emissions include emissions generated on-site by area sources such as natural gas combustion and landscape maintenance, and off-site by motor vehicles accessing the project. Most motor vehicle emissions would occur distant from the site and would not contribute to a violation of ambient air quality standards; therefore, operational mobile emissions were adjusted to reflect emissions within one half mile of the project sites. Mobile sources are the largest source of emissions for most pollutants. ROG is highest for area sources from use of fireplaces and consumer products. The results of the screening analysis are provided in Table 3.3-10. Detailed results are provided in Appendix C.

**Table 3.3-10: Maximum Daily Air Pollutant Emissions During Operation**

Source	Emissions (pounds per day)				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
Residential Project	14.68	6.50	32.77	1.78	0.87
Shopping Center Project	11.44	17.38	17.27	4.30	1.25
Industrial Warehouse Project	12.17	3.51	3.48	0.56	0.56
Middle School Project	3.27	1.28	2.80	0.68	0.22
Maximum Daily Construction Emissions	<b>14.68</b>	<b>17.38</b>	<b>17.27</b>	<b>4.30</b>	<b>1.25</b>
Screening threshold	-	100	100	100	100
Exceed screening threshold?	NA	No	No	No	No
<p>Notes: Emissions are essentially the same for the summer and winter modeling runs. ROG has no concentration-based standard; therefore, no localized exceedance could occur.</p> <p>CO = carbon monoxide      NO<sub>x</sub> = nitrogen oxides      CO = carbon monoxide PM<sub>10</sub> and PM<sub>2.5</sub> = particulate matter      N/A—Not applicable Source: Modeling Results (Appendix C).</p>					

The project would not exceed Valley Air District screening thresholds for localized operational criteria pollutant impacts; therefore, the project’s localized criteria pollutant impacts would be less than significant.

**Operation: ROG**

During operation, ROG would be emitted primarily from motor vehicles. Direct exposure to ROG from project motor vehicles would not result in health effects, because the ROG would be distributed across miles and miles of roadway and in the air. The concentrations would not be great enough to result in direct health effects.

**Operation: PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>2</sub>**

As shown in Table 3.3-11, localized emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and NO<sub>2</sub> would not exceed the Valley Air District screening thresholds for any of the project types included in the Master Plans. Residential development is an insignificant source of these pollutants, except for projects that allow woodburning devices that emit PM<sub>10</sub>, PM<sub>2.5</sub> in wood smoke. The project will include only natural gas-fueled fireplaces and inserts that are insignificant sources of PM<sub>2.5</sub> and PM<sub>10</sub>. Therefore, the project would not expose sensitive receptors to substantial criteria air pollutant concentrations during operation.

### *Carbon Monoxide Hot Spot Analysis*

Localized high levels of CO are associated with traffic congestion and idling or slow-moving vehicles. The Valley Air District provides screening criteria to determine when to quantify local CO concentrations based on impacts to the Level of Service (LOS) of roadways in the project vicinity.

Construction of the project would result in increases in traffic for the surrounding road network during the duration of construction. Motor vehicles accessing the site when the project becomes operational would result in an increase in daily trips. As discussed in the traffic impact study, the increased traffic volumes under existing plus project conditions and under cumulative with project conditions may cause transportation facilities to degrade below acceptable standard levels prior to adding new road improvements. However, after the incorporation of required roadway improvements, LOS would be improved to LOS D or better. Therefore, CO Hotspot Modeling is not required. In addition, the highest background 8-hour average of carbon monoxide, as shown in Table 3.3-10, is 1.78 ppm, which is 80 percent lower than the state ambient air quality standard of 9.0 ppm and the entire State has attained CO standards. Therefore, the project would not significantly contribute to an exceedance of state or federal CO standards.

### *Construction: Toxic Air Contaminants*

Master Plan construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. The Valley Air District's latest threshold of significance for TAC emissions is an increase in cancer risk for the maximally exposed individual of 20 in a million (formerly 10 in a million). The Valley Air District's 2015 GAMAQI does not currently recommend analysis of TAC emissions from project construction activities, but instead focuses on projects with operational emissions that would expose sensitive receptors over a typical lifetime of 70 years. Although construction activities would occur over the 20-year buildout period, individual projects will be constructed in an incremental fashion at widely separated locations throughout the large Master Plan area, subject to extensions of infrastructure to serve the new development. Commercial development and schools would not be constructed until sufficient residential development has been constructed to provide customers and students to support the facilities. The residential portions of the project would produce limited amounts of TAC emissions during operation and thus have not been subject to project TAC analysis. The highest emissions from construction activities occur during the grading and site preparation phase that occurs for limited periods of time at each active construction site. As construction activity moves across the site, sensitive receptor locations would change, thus limiting long term exposure for any one receptor location. Limited amounts of diesel equipment are used during ground-up construction of individual houses that occurs during the majority of the construction schedule when some units may be occupied. Construction equipment fleet operators are subject to ARBs In Use Offroad Equipment Fleet Regulation, which requires the use of increasing amounts of lower-emitting equipment that will help to ensure that risk would not exceed Valley Air District thresholds.

Construction phase risks would be considered acute health risks as opposed to cancer risks, which are long-term. The Office of Environmental Health Hazard Assessment has yet to define acute risk factors for diesel particulates that would allow the calculation of a hazards risk index; thus, evaluation of this impact would be speculative and no further discussion is necessary.

*Operation: Toxic Air Contaminants*

The Zacharias Master Plan includes areas designated for light industrial and warehouse development and a commercial shopping center. Uses that attract or generate large volumes of diesel truck trips have the potential to create significant impacts from diesel particulate matter. Some light industrial projects could use processes or stationary source equipment that generate TAC emissions. The level of impact is dependent on the proximity of the emission sources to sensitive receptor location and the quantity of pollutants emitted. Emission concentrations decline by approximately 80 percent at receptor locations 1,000 feet from sources of TAC emissions. The quantity of pollutants can vary widely by use. For example, high volume parcel delivery facilities have much higher truck trip volume than a high cube warehouse or a light manufacturing facility with limited truck trips.

Health risk assessments prepared for other large business park and warehouse projects such as the West Patterson Business Park and the Phelan Gateway project in Lathrop found TAC impacts would not exceed Valley Air District cancer risk thresholds at nearby receptors. Based on these factors, project impacts are likely to be less than significant. Preparing a health risk assessment for the Master Plan area would be premature without knowing the specific location and the type of use. The results of the HRA would be speculative since the range of potential uses for the light industrial designation are broad and the range of potential impact is very wide. Based on previous assessments, only the most intensive uses with large truck volumes that are close to sensitive receptors would have the potential exceed the significance threshold. To ensure that the potential impacts of projects implementing the Master Plan are fully addressed, criteria to identify projects of potential concern are provided that would require health risk prioritization screening or a full health risk assessment under certain conditions described below.

The ARB Air Quality and Land Use Handbook contains recommendations that will “help keep California’s children and other vulnerable populations out of harm’s way with respect to nearby sources of air pollution” (ARB 2005), including recommendations for distances between sensitive receptors and certain land uses. These recommendations are assessed as follows.

- Distribution centers. The ARB recommends Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
- Fueling stations. The ARB recommends avoiding new sensitive land uses within 300 feet of a large fueling station (a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.
- Dry cleaning operations. The ARB recommends avoiding siting new sensitive land uses within 300 feet of any dry-cleaning operation that uses perchloroethylene. For operations with two or more machines, the ARB recommends a buffer of 500 feet. For operations with three or more machines, the ARB recommends consultation with the local air district.

- Heavily traveled roads. The ARB recommends avoiding new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. Epidemiological studies indicate that the distance from the roadway and truck traffic densities were key factors in the correlation of health effects, particularly in children.

Based on the ARB guidance, the following mitigation measure is proposed.

MM AIR-3c: Prior to approval of site plans for warehouse/distribution center projects located within 1,000 feet of a sensitive receptor location (including land designated for residential, school, etc.) and accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week, the applicant shall provide a health risk prioritization screening analysis to assess the potential DPM impacts of the project. If the project exceeds screening criteria, the applicant shall provide a Health Risk Assessment prepared by a qualified air quality consultant and the City shall submit the HRA for review by the Valley Air District. In addition, the following measures should be considered for the projects:

- Locate loading docks and truck access routes as far from receptor locations as possible.
- Place signs at loading docks requiring trucks to limit idling to less than 5 minutes to comply with ARB In-Use Diesel Truck Regulation anti-idling provisions.
- Provide electric plug in capability to a suitable portion of loading docks for warehouses that use refrigerated trucks to limit TRU operation.
- Encourage the use of electric yard hostlers to move trailers on-site.

MM AIR-3d: Prior to approval of a site plan or CUP for a high-volume gasoline station (3 million gallons per year) within 300 feet of a sensitive receptor location the applicant shall provide a health risk prioritization screening analysis to assess the potential health risk from benzene emissions impacts from the fueling operation. Projects that exceed the risk screening criteria may reduce the fuel throughput or prepare a full HRA to more accurately determine project impacts.

#### *Valley Fever*

Valley fever, or coccidioidomycosis, is an infection caused by inhalation of the spores of the fungus, *Coccidioides immitis* (*C. immitis*). The spores live in soil and can live for an extended time in harsh environmental conditions. Activities or conditions that increase the amount of fugitive dust contribute to greater exposure, and they include dust storms, grading, and recreational off-road activities.

The San Joaquin Valley is considered an endemic area for Valley fever. By geographic region, hospitalizations for Valley fever in the San Joaquin Valley increased from 230 (6.9 per 100,000 population) in 2000 to 701 (17.7 per 100,000 population) in 2007. Within the region, Kern County reported the highest hospitalization rates, increasing from 121 (18.2 per 100,000 population) in 2000 to 285 (34.9 per 100,000 population) in 2007, and peaking in 2005 at 353 hospitalizations (45.8 per 100,000 population). The Centers for Disease Control and Prevention indicates that 752 of the 8,657 persons (8.7 percent) hospitalized in California between 2000 and 2007 for Valley fever died (CDC 2009).

California experienced 7,466 new cases of Valley fever in 2017. A total of 122 Valley fever cases were reported in Stanislaus County in 2017 for a rate of 22.1 per 100,000 people (CDPH 2018).

The distribution of *C. immitis* within endemic areas is not uniform and growth sites are commonly small (a few tens of meters) and widely scattered. Known sites appear to have some ecological factors in common suggesting that certain physical, chemical, and biological conditions are more favorable for *C. immitis* growth. Avoidance, when possible, of sites favorable for the occurrence of *C. immitis* is a prudent risk management strategy. Listed below are ecologic factors and sites favorable for the occurrence of *C. immitis*:

1. Rodent burrows (often a favorable site for *C. immitis*, perhaps because temperatures are more moderate and humidity higher than on the ground surface)
2. Old (prehistoric) Indian campsites near fire pits
3. Areas with sparse vegetation and alkaline soils
4. Areas with high salinity soils
5. Areas adjacent to arroyos (where residual moisture may be available)
6. Packrat middens
7. Upper 30 centimeters of the soil horizon, especially in virgin undisturbed soils
8. Sandy well aerated soil with relatively high water holding capacities

Sites within endemic areas less favorable for the occurrence of *C. immitis* include:

1. Cultivated fields
2. Heavily vegetated areas (e.g. grassy lawns)
3. Higher elevations (above 7,000 feet)
4. Areas where commercial fertilizers (e.g. ammonium sulfate) have been applied
5. Areas that are continually wet
6. Paved (asphalt or concrete) or oiled areas
7. Soils containing abundant microorganisms
8. Heavily urbanized areas where there is little undisturbed virgin soil (USGS 2000).

The project site is mostly undeveloped agricultural land and rural residential land uses. The project is adjacent to existing agricultural land, and residential and industrial development. Because the majority of the Master Plan area and the immediately surrounding vicinity consists of urbanized development or cultivated fields, the site is an area that would lead to a low probability of having *C. immitis* growth sites and exposure from disturbed soil.

Construction activities would generate fugitive dust that could contain *C. immitis* spores. The project will minimize the generation of fugitive dust during construction activities by complying with the District's Regulation VIII. Therefore, this regulation would reduce valley fever impacts during construction to less than significant.

During operations, dust emissions are anticipated to be negligible, because most of the project area would be occupied by buildings, pavement, and landscaped areas. This condition would preclude the possibility of the project from generating fugitive dust that may contribute to Valley fever exposure. Impacts would be less than significant.

#### *Naturally Occurring Asbestos*

According to a map of areas where naturally occurring asbestos in California are likely to occur (USGS 2011), there are no such areas in the project area. Therefore, development of the project is not anticipated to expose receptors to naturally occurring asbestos. Impacts would be less than significant.

#### **Level of Significance Before Mitigation**

Potentially significant impact.

#### **Mitigation Measures**

**MM AIR-3c** Prior to approval of site plans for warehouse/distribution center projects located within 1,000 feet of a sensitive receptor location (including land designated for residential, school, etc.) and accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week, the applicant shall provide a health risk prioritization screening analysis to assess the potential cancer and non-cancer risks from project DPM emissions. If the project exceeds screening criteria, the applicant shall provide a Health Risk Assessment prepared by a qualified air quality consultant and the City shall submit the Health Risk Assessment (HRA) for review by the Valley Air District. In addition, the following measures should be considered for the projects:

- Locate loading docks and truck access routes as far from receptor locations as possible.
- Place signs at loading docks requiring trucks to limit idling to less than 5 minutes to comply with the ARB In-Use Diesel Truck Regulation anti-idling provisions.
- Provide electric plug in capability to a suitable portion of loading docks for warehouses that use refrigerated trucks to limit TRU operation.
- Encourage the use of electric yard hostlers to move trailers on-site.

**MM AIR-3d** Prior to approval of a site plan or conditional use permit for a high-volume gasoline station (3 million gallons per year) within 300 feet of a sensitive receptor location the applicant shall provide a health risk prioritization screening analysis to assess the potential health risk from benzene emissions impacts from the fueling operation. Projects that exceed the risk screening criteria may reduce the fuel throughput or prepare a full HRA to more accurately determine project impacts.

**Level of Significance After Mitigation**

Less than significant impact.

**Other Emissions**

**Impact AIR-4: Buildout of the Master Plans would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

**Impact Analysis**

*Thresholds of Significance*

The project includes light industrial and commercial development that could result in odor impacts depending on the ultimate uses of the property. Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc. warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas.

Two situations create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. According to the CBIA v. BAAQMD ruling, impacts of existing sources of odors on the project are not subject to CEQA review. Therefore, the analysis to determine if the project would locate new sensitive receptors near an existing source of odor is provided for information only. The District has identified the common land use types that are known to produce odors in the Air Basin. These types are shown in Table 3.3-11.

**Table 3.3-11: Screening Levels for Potential Odor Sources**

Odor Generator	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shop)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile
Source: Valley Air District 2015.	

According to the Valley Air District GAMAQI, analysis of potential odor impacts should be conducted for the following two situations:

- **Generators:** projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and
- **Receivers:** residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

If the project were to result in a new odor generator in the list in Table 3.3-11 being located closer than the recommended distances to a sensitive receptor, a more detailed analysis including a review of District odor complaint records for similar uses is recommended. The detailed analysis would involve contacting the District's Compliance Division for information regarding odor complaints for similar uses. For a project locating a new odor source, the project should be identified as having a potentially significant odor impact if it is proposed for a site that is closer to an existing odor source than any location where there have been:

- More than one *confirmed* complaint per year averaged over a three-year period, or
- Three *unconfirmed* complaints per year averaged over a three-year period.

The Valley Air District can recommend controls to reduce potential odors for uses that commonly receive odor complaints.

#### *Project Analysis*

Land uses that are typically identified as sources of objectionable odors include landfills, transfer stations, sewage treatment plants, wastewater pump stations, composting facilities, feed lots, coffee roasters, asphalt batch plants, and rendering plants. The project's light industrial area could include uses allowed by the City Zoning Ordinance, some of which could engage in food processing, package waste treatment facilities, coffee roasting, autobody and painting shops, recycling facilities and similar uses. The City reviews development applications to determine if the potential for odor generation exists and would require additional analysis when needed. Therefore, the project would not be considered to have the potential to expose persons to substantial sources of objectionable odors.

During construction, the various diesel-powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and would not likely be noticeable for extended periods of time beyond the project's site boundaries. The potential for diesel odor impacts is therefore less than significant.

The residential portions of the project have the potential to place sensitive receptors near existing odor sources and new sources of odors in the light industrial area of the Zacharias Master Plan. As discussed earlier, odor impacts from existing uses are not subject to CEQA review and would not result in a significant impact. The project site is not located within 2 miles of the Patterson wastewater treatment facility. There are no solid waste facilities or other major odor generating sources (as listed in Table 3.3-11) within 1 mile of the project site. Therefore, the existing uses would not expose future sensitive receptor locations to substantial odors.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

None required

***Level of Significance After Mitigation***

Less than significant impact.

## 3.4 - Biological Resources

### 3.4.1 - Introduction

This section describes the existing biological setting and potential effects from project implementation on the Master Plan areas and the surrounding area. This section also identifies mitigation measures to reduce these effects to less than significant levels. Descriptions and analysis in this section are based on a field survey performed by FirstCarbon Solutions (FCS) on January 29, 2019. Supporting biological information is provided in Appendix D.

### 3.4.2 - Environmental Setting

#### Regional Setting

The Master Plan areas are located in the upper San Joaquin Valley, located in proximity to the City of Patterson in unincorporated Stanislaus County. The two Master Plan areas totals 1,227 acres of open agricultural land and rural residential uses.

Temperatures in this region range from average lows of 36 degrees Fahrenheit (°F) in December and January to highs of 97°F in July. Annual precipitation averages 11.88 inches, primarily between the months of November and April. The topography of the project area is level at approximately 200 feet above mean sea level, and soils present within the vicinity are heavily compacted.

#### Existing Conditions

Both Master Plan areas contain agricultural land. Irrigation canals are present within the Zacharias Master Plan area. The eastern portion of the Zacharias Master Plan area contains rural residential land on the east side of the Patterson Irrigation District canal. The Master Plan areas are actively cultivated as agricultural fields for various crops, including both orchards and row crops. Additionally, the Master Plan areas contain residential buildings, paved roads, and agricultural buildings (Exhibit 3.4-1).

#### Vegetation

The Master Plan areas are highly maintained and are dominated by orchards and row crops (cherries, apricots, peaches, and tomatoes). Non-native grasses and ruderal (weedy) species are found in crop margins and abutting the unpaved access roads. In addition to the orchard and row crops, common ruderal species observed on the site include Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), sow thistle (*Sonchus oleraceus*), common horseweed (*Conyza canadensis*).

#### Wildlife

The vegetation community and land cover types discussed above provide habitat for numerous local wildlife species. Wildlife activity was low during the field survey and consisted of primarily avian species. The trees in the orchards and at the estate home sites provide suitable nesting habitat for native bird species, including raptors. Species observed during the site visit include red-tailed hawk (*Buteo jamaicensis*) and American crow (*Corvus brachyrhynchos*). The fallow fields and disturbed

areas can also support habitat for ground nesting species such as burrowing owl (although no active burrows were observed). Rodents and migrant coyote could cross the site but are not expected to frequently utilize the site. A California ground squirrel (*Otospermophilus beecheyi*) colony was observed during the site visit on the edge of a fallow field.

### 3.4.3 - Special-status Species

Special-status species are those animal and plant species that, in the judgment of the resource agencies, trustee agencies, and certain non-governmental organizations, are sensitive and warrant special consideration in the California Environmental Quality Act (CEQA) process. These include the following:

- Officially designated “threatened,” “endangered,” or “candidate” species federally listed by the United States Fish and Wildlife Service (USFWS) and protected under the Federal Endangered Species Act (FESA).
- Officially designated “rare,” “threatened,” “endangered,” or “candidate” species State listed by the California Department of Fish and Wildlife (CDFW) and protected under the California Endangered Species Act (CESA). CDFW also maintains a list of “Fully Protected” species as well as “California Species of Special Concern” that are also generally included as special-status species under CEQA.
- Species considered rare, threatened, or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as plant species identified on lists 1A, 1B, and 2 in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Vascular Plants of California.
- Other species considered sensitive, such as birds protected under the Migratory Bird Treaty Act (MBTA), which includes most native birds. A species may also be designated as special concern at the local level.
- Bat species listed as Medium and High Priority with the Western Bat Working Group.

The habitat mapping and field survey were reviewed for potential habitat for the special-status species identified from literature, database searches, and our knowledge of the species of the region. A species is determined to have the potential to occur on the Master Plan areas if its documented geographical range from the literature and database searches includes the vicinity of the Master Plan areas and if suitable habitat for the species was identified within or near the Master Plan areas.

#### **Listed and Special-Status Plants**

Table 4-1 summarizes special-status plant species with the potential to occur within the vicinity of the Master Plan areas. No sensitive plant species were observed within the Master Plan boundaries during the reconnaissance-level survey. The planning areas are heavily impacted by the existing agricultural operations and does not contain suitable habitat for big tarplant (*Blepharizonia plumose*), shining navarretia (*Navarretia nigelliformis ssp. Radians*), Lemmon’s jewel flower (*Caulanthus lemmonii*), spiny-sepaled button-celery (*Eryngium spinosepalum*) or diamond-petaled California poppy (*Eschscholzia rhombipetala*). The complete California Natural Diversity Data Base

(CNDDDB) list of sensitive plant species evaluated for their potential to occur within the Master Plan boundaries, recorded within the Patterson quad, is included in Appendix D.

**Table 3.4-1: Special-status Plant Species Potentially Occurring within the Master Plan Boundaries**

Common Name Scientific Name	Status			Habitat Description <sup>4</sup>	Potential to Occur and Rationale	Included in Impact Analysis
	USFWS <sup>1</sup>	CDFW <sup>2</sup>	CNPS <sup>3</sup>			
big tarplant <i>Blepharizonia plumosa</i>	—	—	1B.1	Valley and foothill grassland. Dry hills a plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 60-505 m.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence.	No
diamond-petaled California poppy <i>Eschscholzia rhombipetala</i>	—	—	1B.1	Valley and foothill grassland. Alkaline, clay slopes and flats. 30-625 m.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence.	No
Lemmon's jewelflower <i>Caulanthus lemmonii</i>	—	—	1B.2	Pinyon and juniper woodland, valley and foothill grassland. 75-1585 m.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence.	No
shining navarretia <i>Navarretia nigelliformis ssp. radians</i>	—	—	1B.2	Cismontane woodland, valley and foothill grassland, vernal pools. Apparently in grassland, and not necessarily in vernal pools. 60-975 m.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence.	No
spiny-sepaed button-celery <i>Eryngium spinosepalum</i>	—	—	1B.2	Vernal pools, valley and foothill grassland. Some sites on clay soil of granitic origin; vernal pools, within grassland. 15-1270 m.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence.	No

Source: FCS 2019.

**Listed and Special-Status Wildlife**

The Special-status Wildlife Species Table 4-2 identifies 10 federal and State listed threatened and/or endangered wildlife species, and State Species of Special Concern that have been recorded in the

CNDDDB (CDFW 2019) within the vicinity of the Master Plan areas. Of these ten, it is anticipated that four protected species have the potential to occur within the planning areas based on suitable foraging or nesting habitat, as well as previously recorded occurrences of these species within the vicinity of the Master Plan areas. The four species that have the potential to occur within the Master Plan areas are the burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), San Joaquin kit fox (*Vulpes macrotis mutica*), and Swainson’s hawk (*Buteo swainsoni*).

**Table 3.4-2: Special-status Wildlife Species Potentially Occurring within the Project**

Common Name Scientific Name	Status		Habitat Description <sup>3</sup>	Potential to Occur and Rationale	Included in Impact Analysis
	USFWS <sup>1</sup>	CDFW <sup>2</sup>			
<b>Reptiles</b>					
San Joaquin coachwhip <i>Masticophis flagellum ruddocki</i>		SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	Unlikely to Occur: Lack of suitable habitat and high level of disturbance at site preclude presence.	No
<b>Birds</b>					
burrowing owl <i>Athene cunicularia</i>	-	SSC	Found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	Moderate Potential to Occur: Site contains suitable habitat in some areas. Extremely high level of disturbance at site lowers likelihood of occurring on-site.	Yes
least Bell's vireo <i>Vireo bellii pusillus</i>	FE	SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence. Lack of riparian woodland habitat on-site.	No

Common Name Scientific Name	Status		Habitat Description <sup>3</sup>	Potential to Occur and Rationale	Included in Impact Analysis
	USFWS <sup>1</sup>	CDFW <sup>2</sup>			
loggerhead shrike <i>Lanius ludovicianus</i>	–	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Low Potential to Occur: Site contains suitable foraging habitat. Nesting habitat is limited. High level of disturbance at site makes presence less likely.	Yes
Swainson's hawk <i>Buteo swainsoni</i>	MBTA	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Moderate Potential to Occur: Site contains suitable foraging habitat. No suitable nesting habitat is found on-site. Suitable nesting habitat can be found nearby.	Yes
tricolored blackbird <i>Agelaius tricolor</i>	-	SSC	Forages in open habitats such as farm fields, pastures, cattle pens, large lawns. Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Breeds in large freshwater marshes, dense stands of hydrophytic vegetation (cattails, bulrushes, etc.)	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence. Lack of wetland habitat on-site.	No
<b>Mammals</b>					
American badger <i>Taxidea taxus</i>	-	SSC	Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Requires sufficient food sources (rodents), friable soils, and open, uncultivated ground. Digs large burrows.	Unlikely to Occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence. Lack of shrub and forest habitat on-site.	No
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE	-	Found in native grasslands on the edges of the San Joaquin Valley. Need loose-textured sandy soils for burrowing, and suitable prey base.	Low potential to occur: Lack of suitable habitat and extremely high level of disturbance at site preclude presence.	Yes

Common Name Scientific Name	Status		Habitat Description <sup>3</sup>	Potential to Occur and Rationale	Included in Impact Analysis
	USFWS <sup>1</sup>	CDFW <sup>2</sup>			
<b>Amphibians</b>					
foothill yellow-legged frog <i>Rana boylei</i>	-	SSC	Foothill yellow-legged frogs are found in Vernal pools, meadows and seeps or near rocky streams in a variety of habitats. Unlike most other ranid frogs in California, this species is rarely encountered (even on rainy nights) far from permanent water.	Unlikely to Occur: no suitable habitat is present within the Project.	No
western spadefoot <i>Spea hammondi</i>	—	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Unlikely to Occur: no suitable habitat is present within the project site.	No
<b>Code Designations</b>					
<b><sup>1</sup> Federal Status: 2018 USFWS Listing</b>			<b><sup>2</sup> State Status: 2018 CDFW Listing</b>		
<b>ESU</b> = Evolutionary Significant Unit is a distinctive population. <b>FE</b> = Listed as endangered under FESA. <b>FT</b> = Listed as threatened under FESA. <b>FC</b> = Candidate for listing (threatened or endangered) under FESA. <b>FD</b> = Delisted in accordance with FESA. <b>FPD</b> = Federally Proposed to be Delisted. <b>MBTA</b> = protected by the Migratory Bird Treaty Act <b>—</b> = Not federally listed			<b>SE</b> = Listed as endangered under CESA. <b>ST</b> = Listed as threatened under CESA. <b>SSC</b> = Species of Special Concern as identified by the CDFW. <b>FP</b> = Listed as fully protected under the Fish and Game Code (FGC). <b>CFG</b> = FGC = protected by FGC 3503.5 <b>CR</b> = Rare in California. <b>—</b> = Not State listed		
<sup>3</sup> <b>Habitat description:</b> Habitat description adapted from CNDDB (CDFW 2018a). Source: FCS 2019.					

These species are further discussed below:

*Burrowing owl*

The burrowing owl is a California State Species of Special Concern. The species was not found during the FCS field survey; however, suitable burrows and potential habitat occur in the Master Plan areas. The species may utilize the fallow agricultural fields as potential nesting habitat.

*Loggerhead shrike*

The loggerhead shrike is a California State Species of Special Concern. This species has potential to forage within the planning areas. Nesting habitat is limited to several shrubs and small trees mostly along roads and property boundaries. Furthermore, there is a recorded occurrence of breeding loggerhead shrike approximately 1 mile from the Zacharias Master Plan area, near the Mendota Canal (Exhibit 3.4-1). Loggerhead shrikes are protected under the MBTA and are a California species

of special concern. Mitigation Measure BIO-1a requires that a standard pre-construction survey be performed for this species and identifies avoidance measures if this species is found to be nesting.

#### *San Joaquin kit fox*

San Joaquin kit fox is a federally endangered species that is found in native grasslands and requires loose-textured sandy soils for burrowing, and suitable prey base. The species was not found during the FCS field survey, and additionally, no indicators of habitat or San Joaquin kit fox were found during the field survey. However, for purposes of a conservative analysis, it is recognized that because of the possibility of the species to travel through the Master Plan areas, there is a low potential for this species to occur on the planning areas.

#### *Swainson's hawk*

Swainson's hawk is federally protected under the MBTA, and is additionally listed as a State threatened species. The species breeds in grasslands with scattered trees or on ranch lands with groves or lines of trees. It requires adjacent suitable foraging areas, such as grasslands or agricultural fields supporting rodent populations. This species has the potential to occur within Master Plan boundaries due to the suitable foraging habitat present on-site in the form of open fallow agricultural fields and row crops with little to no ground cover and tree coverage present. Nesting habitat is low due to lack of large trees within and surrounding the planning areas. Due to this, there is potential for this species to forage on the Master Plan areas.

### **Jurisdictional Waters**

The Master Plan areas do not contain any wetlands or other areas designated as waters of the U.S., and no further studies or regulatory permitting would be required. Therefore, the project would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA. Lastly, because no jurisdictional features or riparian habitats are within Master Plan boundaries, these potential impacts are not addressed in the impact analysis and recommendations section of this document.

### **3.4.4 - Regulatory Framework**

#### **Federal**

##### ***Federal Endangered Species Act***

The USFWS and the National Marine Fisheries Service administer the Federal Endangered Species Act (FESA), which provides a process for listing species as either threatened or endangered, and methods of protecting them. FESA defines "endangered" as any plant or animal species that is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is a species that is likely to become endangered in the near future. A "proposed" species is one that has been officially proposed by USFWS for addition to the Federal threatened or endangered species list.

FESA Section 9 prohibits the "take" of any fish or wildlife species listed under FESA. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. "Harm" includes not only the direct taking of a species itself, but also in the destruction of the species' habitat resulting in potential injury to the species. Under FESA

regulations, the USFWS may authorize take when it is incidental to, but not the purpose of, an otherwise lawful act.

### ***Migratory Bird Treaty Act***

The MBTA makes it unlawful to kill, possess or trade or attempt to do the same to any migratory bird listed in Title 50 of the Code of Regulations, Section 10.13, including their nests, eggs, or young, except in accordance with regulations prescribed by the Secretary of the Interior.

### ***Clean Water Act***

Section 404 of the Federal Clean Water Act (CWA), which is administered by the United States Army Corps of Engineers (USACE), regulates the discharge of dredge and fill material into “waters of the United States.” Once Section 404 jurisdiction is established, several different types of permitting procedures cover the discharge of dredge and fill material. The first category of permits is the General Permit (falling into two sub-categories: nationwide and regional permits), which provide standing authority for certain specified activities, and set forth various compliance requirements necessary to obtain coverage without further USACE involvement. The second category of permits is the Individual Permit. Unlike the General Permit process, individual permit applications are subject to public notice and a public interest review, which involve a comprehensive analysis of a number of identified factors to evaluate the probable impacts on the public interest of the proposed activity. These permit applications also require preparation of an alternatives analysis that evaluates whether there is a “practicable alternative” to the proposed discharge. The USACE has established a series of nationwide permits that authorize certain activities in waters of the United States if a proposed activity can demonstrate compliance with standard conditions. Normally, the USACE requires an individual permit for an activity that would affect an area equal to or in excess of 0.5 acre of waters of the United States. Projects that result in impacts to less than 0.5 acre can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. The USACE also has discretionary authority to require an Environmental Impact Statement for projects that result in impacts to an area between 0.1 and 0.5 acre. Use of any nationwide permit is contingent on the activities having no impacts to endangered species.

Section 401 of the CWA requires that “any applicant for a federal permit for activities that involve a discharge to waters of the State shall provide the federal permitting agency with a certification from the State, in which the discharge is proposed, that states the discharge will comply with the applicable provisions under the federal Clean Water Act.” Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the Regional Water Quality Control Board (RWQCB). This certification requirement applies to both General and Individual Permits.

## **State**

### ***California Endangered Species Act***

The CDFW administers the California Endangered Species Act (CESA); its basic policy is to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA further declares that state agencies will not approve projects as proposed that would jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse

modification of habitat essential to the continued existence of those expenses, if there are reasonable and prudent alternatives available. CESA prohibits the take of listed threatened or endangered species. Unlike FESA, CESA also protects species that are identified as candidates for listing as threatened or endangered. Under CESA, take means to “hurt, pursue, capture or kill,” or attempt any of these acts. This definition of take is narrower than the FESA definition of take, because it does not include harm to or harassment of a species. It also does not prohibit indirect harm to CESA-listed species by way of habitat modification. The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered one that is present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. If a proposed project would result in impacts to a species protected by CESA, an “incidental take” permit would be necessary, which may authorize the take so long as it is incidental to an otherwise lawful activity and would not jeopardize the continued existence of the species, and so long as certain other specified conditions are met.

### ***California Environmental Quality Act***

As discussed above, specific federal and State statutes protect threatened and endangered species. In addition, CEQA Guidelines Section 15380 provides that a species not listed on the federal or state lists of threatened or endangered species may be considered rare or endangered under CEQA review if the species can be shown to meet certain criteria.

In addition, sensitive plant species are afforded protection under CEQA through the CNPS inventory of rare, threatened, and endangered plants of California. CNPS is a California resource conservation organization that has developed an inventory of California’s sensitive plant species. This inventory summarizes information on the distribution, rarity, and endangerment of California’s vascular plants. The inventory is divided into four lists that are based on the rarity of the species. In addition, the CNPS provides an inventory of plant communities that are considered sensitive by state and federal resource agencies, academic institutions, and various conservation groups. Determination of the level of sensitivity is based on the number and size of remaining occurrences as well as recognized threats. See below for additional information regarding the CNPS inventory.

### ***California Department of Fish and Game Codes***

#### ***Sections 1600 through 1603***

Activities that substantially divert, obstruct or change the natural flow, or substantially modify the bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFW pursuant to Sections 1600 through 1603 of the Fish and Game Code, requiring preparation of a Streambed Alteration Agreement. Under the Code, a stream is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Included are watercourses with surface or subsurface flows that support or have supported riparian vegetation. Additionally, the CDFW has jurisdiction over altered or artificial waterways as well as dry washes that carry water ephemerally during storm events based on the biological value of these drainages to fish and wildlife.

### *Sections 3503 and 3511*

Particular sections of the Fish and Game Code are applicable to natural resource management. For example, Section 3503 of the Fish and Game Code states it is unlawful to take, possess, or destroy birds, their nests, or eggs of any bird. Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered take. All raptors, their active nests, eggs, and young are protected. Additionally, Section 3511 of the Fish and Game Code lists fully protected bird species such as the white-tailed kite and golden eagle that may not be taken or possessed at any time, except in certain limited circumstances.

### **Porter-Cologne Water Quality Control Act**

The RWQCB regulates actions that would involve “discharging waste, or proposing to discharge waste, within any region that could affect the water of the state” (California Water Code Section 13260(a), pursuant to provisions of the Porter-Cologne Water Quality Act.) Waters of the State are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” (California Water Code 13050(e)).

### **California Native Plant Protection Act**

The California Native Plant Protection Act (NPPA) is intended to preserve, protect, and enhance endangered or rare native plants in California. This Act directs the CDFW to establish criteria for determining what native plants are rare or endangered. Under this Act, a species is endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes. A species is rare, although not threatened with immediate extinction, if it is in such small numbers throughout its range that it may become endangered if its present environment worsens. This Act prohibits any person from importing into or taking, possessing or selling within California, except as incident to the possession or sale of the real property on which the plant is growing, any endangered or rare native plant or as otherwise excepted under the Act.

The CNPS maintains a list of plant species native to California that have low numbers, limited distribution, or otherwise are threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to population of rare plants receive consideration under CEQA review. The CNPS ranking system applicable to the project are defined below:

- List 1A: Plants presumed extinct
- List 1B: Plants rare, threatened or endangered in California and elsewhere
- List 2: Plants rare, threatened or endangered in California, but more numerous elsewhere.

## **Local**

### **City of Patterson**

#### *General Plan*

The City of Patterson General Plan sets forth the following goals and policies relevant to biological resources:

- **Goal NR-1:** To protect and preserve the quality of water from local watersheds, groundwater resources, and water bodies including creeks, reservoirs, and the San Joaquin River.
- **Policy NR-1.1:** Open space conservation. The City shall conserve open space areas and drainage canals to protect water resources within the local watershed and the San Joaquin River.
- **Policy NR-1.2:** Stormwater quality. The City shall implement measures to minimize the discharge of pollutants and sediment into Salado Creek, Del Puerto Creek and the San Joaquin River (see Goal PS-3 for more policies on stormwater quality).
- **Policy NR-1.4:** Sedimentation. The City shall continue to support local, regional, and statewide efforts to minimize the discharge of sediment into waterways, including Salado Creek, Del Puerto Creek and the San Joaquin River.
- **Goal NR-3:** To protect natural open space areas, sensitive native vegetation, and wildlife communities and habitat.
- **Policy NR-3.2:** Protection of sensitive species. A project with the potential to adversely impact special status species or their habitat, shall provide evidence of compliance with the relevant provisions of state and federal laws relating to the preservation of rare, threatened, or endangered species and their habitat prior to project approval and/or prior to construction as determined by the requirements set forth in the federal and state Endangered Species Acts, the federal Clean Water Act, the federal Rivers and Harbors Act and the Implementation Measures provided in Appendix NR.
- **Policy NR-3.3:** On-site resource preservation. The City shall encourage new development to preserve on-site natural elements that contribute to the community's native plant and wildlife species value and to its aesthetic character.
- **Policy NR-3.4:** Agency coordination. The City shall support, and participate in, local and regional efforts of local, state and federal resource agencies (e.g. Stanislaus County, California Department of Fish and Game, Army Corps, United States Fish and Wildlife Service) to protect, restore and maintain viable, contiguous areas of habitat for sensitive plant and animal species (see also Implementation Measures and Appendix NR).
- **Policy NR-3.5:** Project-specific surveys for rare plants. Where future development projects have the potential to impact natural plant communities, the City shall require the project applicant to conduct a rare plant survey prepared by a qualified Biologist in accordance with applicable guidelines of the USFWS, CDFG and CNPS. The survey shall identify and map any existing rare, threatened, or endangered plant species. If any of these species are found, mitigation measures shall be developed within the project-level CEQA document and implemented with performance monitoring to avoid significant impacts. The project applicant shall be required to consult with the CDFG and USFWS regarding appropriate mitigation for potential impacts to each sensitive plant species found to occur at the project site. Mitigation may include (but is not limited to) the acquisition and permanent protection of habitat for the subject species of concern, in addition to the implementation of project-specific mitigation measures designed to reduce potential impacts to individual animals. These measures shall be based on the biological requirements of each species found to occur at a particular site, as

well as a complete description of the proposed project and its potential impacts to the subject species (see also Implementation Measures and Appendix NR).

- **Policy NR-3.6:** Wildlife surveys for individual projects. Where future development projects have the potential to adversely impact sensitive wildlife resources, the City shall require the project applicant to conduct a biological field survey to assess habitat suitability and wildlife utilization of the project site. All biological field surveys shall be prepared consistent with the requirements of relevant state and federal resources agencies, and each project applicant shall consult with applicable state and federal agencies regarding the results of these surveys and appropriate mitigation measures. Additionally, species-specific surveys shall be conducted in accordance with current guidelines for each rare, threatened, and endangered animal species potentially occurring at the site. If any sensitive wildlife species are found to occur on or utilize the existing habitat as a proposed project site, the project applicant shall be required to consult with CDFG and USFWS regarding appropriate mitigation prior to any City action on a development entitlement request. Mitigation may include (but is not limited to) the acquisition and permanent protection of habitat for the subject species of concern, in addition to the implementation of project-specific mitigation measures designed to reduce the potential impacts for individual animals. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed projects and its potential impacts to the subject species (see also Implementation Measures and Appendix NR).
- **Policy NR-3.9:** Monitoring. Monitoring of mitigation and restoration activities shall be consistent with requirements for each species or habitat as prescribed by the relevant regulatory jurisdictional agencies. For listed or candidate species, species of special concern, or sensitive habitats for which no mitigation or avoidance measures have been published, the City shall require evidence of coordination with the responsible agencies prior to acceptance of mitigation, avoidance measures, or monitoring requirements.
- **Policy NR-3.10:** Open space conservation. The City shall continue to preserve, protect, and provide access to designated open space areas that may be established along the San Joaquin River, Del Puerto Creek, and undevelopable floodplains.

### 3.4.5 - Methodology

FCS staff conducted a field reconnaissance on January 29, 2019 to document conditions on the Master Plan areas. In addition, the following sources of data and information were reviewed to determine the potential for special-status plant or wildlife species to occur within the planning areas; relevant supporting information is included in Appendix D:

- CNPS CNDDDB records for the *Patterson*, California 7.5-minute topographic quadrangle
- CNPS Electronic Inventory (CNPSEI) of Rare and Endangered Vascular Plants of California records for the *Patterson*, California 7.5-minute topographic quadrangle

### 3.4.6 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, biological resources impacts resulting from the implementation of the proposed project would be considered significant if the project would:

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- d) 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 wildlife nursery sites?
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

### 3.4.7 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

#### Special-Status Species

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<b>Impact BIO-1:</b>	<b>Buildout of the Master Plans may have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service.</b>
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#### ***Impact Analysis***

This impact will address the proposed project's potential to have a substantial adverse effect on special-status species.

#### ***Baldwin and Zacharias Master Plans***

As previously discussed, no special-status plant species have the potential to occur within the Master Plan areas. Several special-status wildlife species have the potential to occur, discussed as follows.

### *Burrowing Owl*

The Master Plan areas provide suitable habitat (burrows for nesting, and adequate prey base) for burrowing owls, though the likelihood an owl would occur on-site is unlikely. Burrowing owls are protected under the MBTA and are a California species of special concern. No burrowing owls were observed during the reconnaissance survey. As such, Mitigation Measure (MM) BIO-1a requires that a standard pre-construction survey be performed for this species and identifies avoidance measures if this species is found to be present.

### *Migratory Birds*

A number of migratory birds could breed on-site; therefore, preconstruction surveys within 30 days of construction activities must be conducted by a qualified Biologist during the breeding season (February through August). These surveys can occur concurrently with burrowing owl and loggerhead shrike surveys. MM BIO-1a requires that a standard pre-construction survey be performed for nesting birds and identifies avoidance measures if such birds are found to be present.

### *San Joaquin Kit Fox*

The San Joaquin kit fox occurs in grassland, prairies, and other arid plant communities throughout the Central and Salinas valleys of California. There are four recorded observations of the species within approximately 8 miles of the Master Plan areas: one individual observed in 1973, one individual observed in 1989, one individual found dead on the west side of Interstate 5 (I-5) in 1990, and one individual found dead on the west side of the I-5 in 2004. No direct observations of kit fox or its sign (e.g., scat, prints, or appropriately sized burrows) were observed during the site visit. Since the Master Plan areas lie on the east side of I-5, it is presumed kit fox would be absent from the site, as I-5 appears to act as a barrier to movement, evidenced by a complete lack of observations of kit fox on the east side of the highway within 10 miles of the Master Plan areas, and the two observations of dead fox on the west side of the highway. Furthermore, the California Aqueduct and the Delta Mendota Canal lie between I-5 and the site, creating a further impediment to eastward movement. The probability that San Joaquin kit fox would occur is extremely low. Nonetheless, MM BIO-1c requires that a standard pre-construction survey be performed for this species and identifies avoidance measures if this species is found to be present.

### *Swainson's Hawk*

In the Central Valley of California, the Swainson's hawk breeds mainly in mature trees associated with riparian corridors and forages over multiple habitat types. This species preys on a variety of species including insects, reptiles, and small mammals. This species is often seen foraging over alfalfa fields. There are six CNDDDB occurrence records that occurred between 1988 and 2001 within 10 miles of the Master Plan areas, all located to the east of the site along the San Joaquin River. This species could occasionally forage over the Master Plan areas, although it is more likely it forages in close proximity to the nest sites associated with the San Joaquin River. No Swainson's hawks were observed during the reconnaissance survey. Protocol surveys are recommended for Swainson's hawk prior to construction to ensure its nesting is absent from the vicinity of the Master Plan areas. Recommended survey methods follow the Swainson's hawk Central Valley protocol. This includes performing nesting surveys within a 0.5-mile radius of the Master Plan areas for at least two periods prior to commencement of construction. MM BIO-1b requires that a standard pre-construction

survey be performed for this species and identifies avoidance measures if this species is found to be present.

The Master Plan areas contain orchards, row crops, and fallow fields. The Mitigation Guidelines for Swainson's Hawk indicates that the following agricultural land uses can provide foraging habitat suitable for the Swainson's hawk: "alfalfa; fallow fields; beet, tomato, and other low-growing row or field crops; dry-land and irrigated pasture; rice land (when not flooded); and cereal grain crops (including corn after harvest)." As such, only the portions of the Master Plan areas containing row crops or fallow fields would be considered to have the potential to provide foraging habitat; the orchards would not.

There are several recorded occurrences of the Swainson's hawk within 10 miles of the Master Plan areas. The Mitigation Guidelines for Swainson's Hawk establishes that projects within 10 miles of an active nest tree but greater than 5 miles from the nest tree shall provide 0.50 acre of habitat mitigation land for each acre of foraging habitat impacted. Accordingly, these requirements are reflected in MM BIO-1b.

#### *Conclusion*

No sensitive species were observed on the site during the reconnaissance survey, and there are no known or recorded observations of any sensitive species associated with the Master Plan areas. The mitigation measures below are presented to confirm whether special-status species have remained absent from the planning areas, and that no animal would be harmed in the unlikely event a special-status species is found on-site prior to construction. With the implementation of MM BIO-1a through MM BIO-1b, impacts would be reduced to a level of less than significant.

#### ***Level of Significance Before Mitigation***

Potentially significant impact

#### ***Mitigation Measures***

**MM BIO-1a** No more than 14 days prior to the initiation of ground-disturbing activities within the nesting season (February 1 to August 31), a qualified Biologist shall perform a pre-construction survey for burrowing owl, loggerhead shrike, or nesting migratory birds active within the Master Plan areas and within a 200-foot buffer of the project site to determine the presence or absence of these species. If these species are determined to be present, the applicant shall follow the guidelines outlined by the California Department of Fish and Wildlife (CDFW):

- If burrowing owls are found on-site during the nesting season (February 1 to August 31), they shall be avoided by a 250-foot work-free buffer until it has been determined by a qualified Biologist that the young have fledged and are independent of their parents. The 250-foot work-free buffer will be clearly defined (e.g., with orange construction fencing), and a biological monitor will visit the site randomly throughout the breeding season to ensure the area remains work-free and the owls are not negatively affected by construction activities.

- If loggerhead shrike or any other migratory birds are found nesting on-site, a 50-foot work-free buffer area will be established and monitored by a qualified Biologist until young have fledged and are independent of their parents. Again, nests and work-free buffers would be monitored.
- If burrowing owls occur on the project area during the wintering season (September 1 to January 31), and construction is slated to begin during this time and active burrows cannot be avoided, an eviction of owls can be conducted to ensure owls move off the site prior to commencement of construction. The eviction process includes the installation of one-way doors that remain in all burrows of suitable size for at least 3 days, monitored by a qualified Biologist, and then hand-excavating burrows to ensure no owl remains in the burrow. Once the site is clear of owls, the burrows can be backfilled, after which ground-disturbing construction activity can commence.
- In the unlikely event burrowing owls are found on-site, mitigation lands must be purchased to offset the loss of their habitat. The standard mitigation lands required to loss of habitat is 6.5 acres for every pair of owls found on-site.

**MM BIO-1b** No more than 14 days prior to ground-disturbing activities during the breeding season (February 1 to August 31), a qualified Biologist shall perform pre-construction surveys for the Swainson's hawk in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. In accordance with the guidelines, surveys shall occur within a 0.5-mile radius of the site, and shall involve a minimum of two survey periods. In the event that one or more Swainson's hawks are observed to be nesting, a work-free buffer area shall be established and monitored by a qualified Biologist. The Biologist shall have the discretion to determine the appropriate buffer, which may involve consultation with the CDFW, as appropriate. The Biologist shall determine when the nest has been vacated, at which point, the work-free buffer area can be removed.

**MM BIO-1c** The project applicant shall adhere to the following requirements to avoid or minimize adverse impacts on the San Joaquin kit fox:

- No more than 14 days prior to the first ground-disturbing activity, a qualified Biologist shall thoroughly walk the Master Plan areas, as well as a 200-foot buffer around the perimeter of the Master Plan areas, to locate potential San Joaquin kit fox dens. If no dens are located, no further surveys efforts are required. If dens are located during this survey effort, the status of the dens shall be assessed and the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) shall be consulted.
- All vehicles operating within the construction area shall observe a maximum 20-mph speed limit.
- All ground-disturbing construction activities shall occur during daylight hours.

- All excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each work day or shall have escape ramps constructed of earth fill or wooden planks installed. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If an animal is found within these structures, the animal shall be allowed to leave on its own without harm or harassment.
- All construction piles, culverts, or similar structures with a diameter of 4 inches or greater that are stored at the construction site shall be thoroughly inspected for animals prior to burial, capping, or moving. If a kit fox is found within any of these structures, the structure shall remain untouched until the kit fox has vacated the structure; if necessary, the USFWS and CDFW shall be consulted.
- All food-related trash shall be disposed of in closed containers and removed from the construction site at a minimum of once per week.
- Prior to the first ground-disturbing activity, a qualified Biologist shall conduct an employee education program for construction personnel. The education program shall include a physical description of the kit fox, methods of impact avoidance, and points of contact should an impact occur or potentially occur. A fact sheet covering all of this information shall be provided to each employee.
- The applicant shall establish a point of contact for construction personnel in the event that a kit fox is accidentally injured or killed.
- Prior to ground-disturbing activities, the City shall retain a qualified Biologist to conduct periodic inspections of the Master Plan areas during construction to ensure compliance with the above measures.
- The CDFW shall be notified immediately and the Sacramento Fish and Wildlife office shall be notified within 3 days if a kit fox is injured or killed.

### ***Level of Significance After Mitigation***

Less than significant impact

### **Sensitive Natural Communities or Riparian Habitat**

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**Impact BIO-2:** Buildout of the Master Plans would not have adverse impacts on sensitive natural communities or riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife (CDFW) or the United States Fish and Wildlife Service (USFWS).

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### ***Impact Analysis***

This impact assesses the potential for adverse impacts on riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS.

### ***Baldwin and Zacharias Master Plans***

The Master Plan areas contain several irrigation canals. These canals are manmade features and do not possess attributes that would meet the definition of riparian habitat.

The nearest waterway is Salado Creek which runs parallel to the southeast corner of the Zacharias Master Plan area, approximately 2,000 feet to the east. Del Puerto Creek lies approximately 0.62 mile northwest of the Zacharias Master Plan area. Salado and Del Puerto Creeks are tributaries of the San Joaquin River which lies approximately 3 miles east of the Master Plan areas. Construction and operational activities would remain limited to the Master Plan areas and would not extend to these more distant waterways. Because of the distance to these resources, potential impacts to riparian habitat or other sensitive natural communities would be less than significant.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

No mitigation measures are necessary.

***Level of Significance After Mitigation***

Less than significant impact.

**Wetlands and Jurisdictional Features**

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**Impact BIO-3:** Buildout of the Master Plans would not have a substantial adverse effect on state or federally protected wetlands or jurisdictional features as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

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***Impact Analysis***

This impact assesses the potential for adverse impacts on federally protected wetlands and jurisdictional features as defined by Section 404 of the Clean Water Act. Jurisdictional features include rivers, creeks, marshes, vernal pools, and seasonal wetlands.

***Baldwin and Zacharias Master Plans***

The Master Plan areas contain several irrigation canals. These canals are manmade features and do not possess attributes that would qualify as jurisdictional.

The planning areas do not contain any natural waterways that possess attributes that would qualify as jurisdictional features or protected wetlands. Impacts would be less than significant.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

No mitigation measures are necessary.

***Level of Significance After Mitigation***

Less than significant impact.

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## Fish and Wildlife Movement Corridors

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**Impact BIO-4:** Buildout of the Master Plans would not 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 wildlife nursery sites.

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### ***Impact Analysis***

This impact assesses the potential for adverse impacts on wildlife movement or the use of wildlife nursery sites.

### ***Baldwin and Zacharias Master Plans***

The Master Plan areas contain several irrigation canals. These canals do not support fish passage due to obstructions within the channels such as sluice gates and weirs.

The Master Plan areas contain cultivated agriculture and associated residential and agricultural structures. These land use activities do not possess attributes that facilitate regional wildlife movement (e.g., linkages). Thus, the development of the proposed project would not conflict with wildlife movement.

Impacts would be less than significant.

### ***Level of Significance Before Mitigation***

Less than significant impact.

### ***Mitigation Measures***

No specific mitigation measures are necessary.

### ***Level of Significance After Mitigation***

Less than significant impact.

## Local Policies or Ordinances

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**Impact BIO-5:** Buildout of the Master Plans would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

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### ***Impact Analysis***

This impact assesses the potential for conflicts with local policies or ordinances protecting biological resources.

### ***Baldwin and Zacharias Master Plans***

The City of Patterson does not have a tree preservation ordinance, which precludes the possibility of conflicts with such an ordinance.

City of Patterson General Plan Policy NR-3.2 outlines the protection of sensitive species that may be affected by the project. MM BIO-1a through MM BIO-1e, outlined above, would be implemented to

confirm that special-status species remain absent from the site, and that no animal would be harmed in the unlikely event an errant animal is found on-site prior to construction.

***Level of Significance Before Mitigation***

Potentially significant impact.

***Mitigation Measures***

Implement MM BIO-1a and MM BIO-1b.

***Level of Significance After Mitigation***

Less than significant impact.

**Local, Regional, or State Habitat Conservation Plan**

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**Impact BIO-6:** Buildout of the Master Plans would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

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***Impact Analysis***

This impact assesses the potential for conflicts with local, regional, or State habitat conservation plan protecting biological resources.

***Baldwin and Zacharias Master Plans***

The Master Plan areas are not located within the boundaries of any local, regional, or State habitat conservation plan. The nearest habitat conservation plan in proximity to the planning areas is the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan that lies approximately 13.5 miles to the north. This condition precludes the possibility of conflicts with such a plan. No impact would occur.

***Level of Significance Before Mitigation***

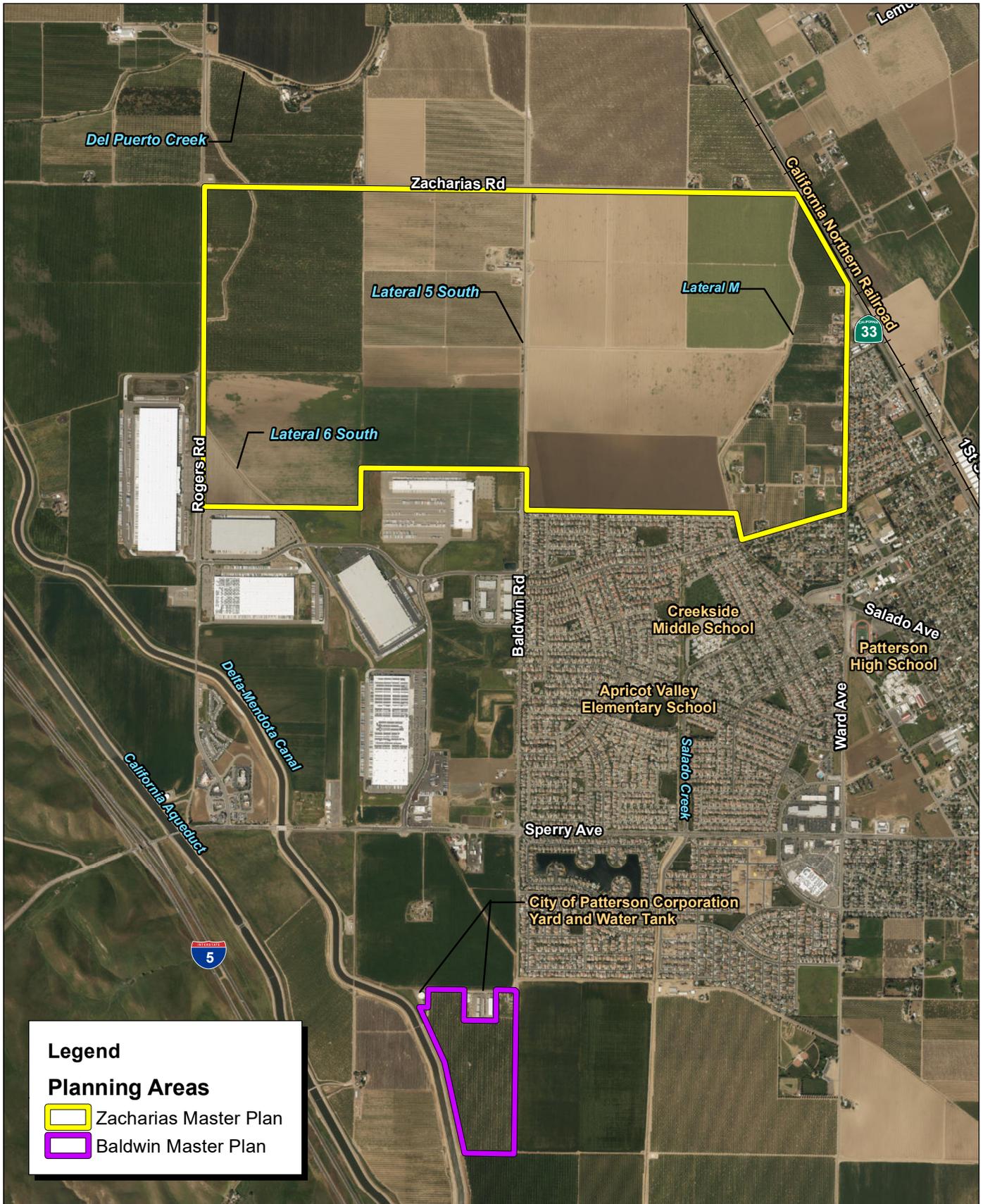
No impact.

***Mitigation Measures***

No mitigation is necessary.

***Level of Significance After Mitigation***

No impact.



Source: ESRI Aerial Imagery.

**Legend**

**Planning Areas**

- Zacharias Master Plan
- Baldwin Master Plan



**Exhibit 3.4-1**  
**Local Vicinity**

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## 3.5 - Cultural Resources and Tribal Cultural Resources

### 3.5.1 - Introduction

This section describes existing cultural and tribal cultural resources in the region and project area as well as the relevant regulatory framework. This section also evaluates the possible impacts related to cultural and tribal resources that could result from implementation of the proposed project. Supporting information is provided in Appendix E.

### 3.5.2 - Environmental Setting

#### Cultural Resources Components

The term “cultural resources” encompasses historic, archaeological, and paleontological resources, and burial sites. Below is a brief summary of each component:

- **Historic Resources:** Historic resources are associated with the recent past. In California, historic resources are typically associated with the Spanish, Mexican, and American periods in the State’s history and are generally less than 200 years old.
- **Archaeological Resources:** Archaeology is the study of artifacts and material culture with the aim of understanding human activities and cultures in the past. Archaeological resources may be associated with prehistoric indigenous cultures as well as historic periods.
- **Burial Sites and Cemeteries:** Burial sites and cemeteries are formal or informal locations where human remains have been interred.

#### Overall Cultural Setting

Following is a brief overview of the prehistory, ethnography, and historic background, providing a context in which to understand the background and relevance of sites found in the general project area. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview. Further details can be found in ethnographic studies, mission records, and major published sources.

#### *Prehistoric and Ethnographic Background*

Early archaeological investigations in Central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area. The initial archaeological reports typically contained descriptive narratives with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, University of California at Berkeley excavated several sites in the lower Sacramento Valley and Delta region, which resulted in recognizing archaeological site patterns based on a variation of intersite assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence. In 1939, researcher Jeremiah Lillard of Sacramento Junior College noted that each cultural period led directly to the next and that influences spread from the Delta region to other regions in Central California. In the late 1940s and early 1950s, researcher Richard Beardsley of the University of California Berkeley documented

similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession.

To address some of the flaws in the CCTS system, it was revised to incorporate a system of spatial and cultural integrative units that were separated into cultural, temporal, and spatial units assigned to six chronological periods: Paleo- Indian (12000 to 8000 years Before Present [BP]); Lower, Middle, and Upper Archaic (8000 to 1500 BP), and Emergent (Upper and Lower, 1500 to 250 BP). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal sequence. In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns include:

- Windmill Pattern or Early Horizon (4500 to 3500 BP)
- Berkeley Pattern or Middle Horizon (3500 to 1500 BP)
- Augustine Pattern or Late Horizon (1500 to 250 BP)

Brief descriptions of these temporal ranges and their unique characteristics follow.

#### *Windmill Pattern or Early Horizon (4500 to 3500 BP)*

Characterized by the Windmill Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests exploitation of numerous types of terrestrial and aquatic species. Burials occurred in cemeteries and intra-village graves. These burials typically were ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicate an extensive trade network that may represent the arrival of Utian populations into central California. Also indicative of this period are rectangular Haliotis and Olivella shell beads, and charmstones that usually were perforated.

#### *Berkeley Pattern or Middle Horizon (3500 to 1500 BP)*

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. The practice of spreading ground ochre over the burial was common at this time. Grave goods during this period are generally sparse and typically include only

utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual. During this period, larger populations are suggested by the number and depth of sites compared with the Windmill Pattern. According to Fredrickson, the Berkeley Pattern reflects gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis.

#### *Augustine Pattern or Late Horizon (1500 to 250 BP)*

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology; and most importantly, acorns became the predominant food resource. Trade systems expanded to include raw resources as well as finished products. There are more baked clay artifacts and extensive use of Haliotis ornaments of many elaborate shapes and forms. Burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation. Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson suggests that the Augustine Pattern represents expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern.

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations. Although debate continues over a single model or sequence for California, the general framework consisting of three temporal/cultural units is generally accepted, although the identification of regional and local variation is a major goal of current archaeological research.

## **Native American Background**

### ***Northern Valley Yokuts***

At the time of European contact, most of the San Joaquin Valley and the foothills of the western slope of the Sierra Nevada were occupied by the Yokuts, who are generally recognized as having three major subgroups: the Northern Valley, the Foothill, and the Southern Valley. Each of these ethnolinguistic groups was made up of autonomous, culturally and linguistically related tribes or tribelets. Native American territories have fluid boundaries; however, the project area appears to be within the Northern Valley Yokuts territory.

Stanislaus County was habituated by the Northern Valley Yokuts, near their terrestrial boundary with the Southern Valley Yokuts. The Northern Valley Yokuts occupied an environment rich with abundant water resources from the nearby sloughs, lake basins, and river systems. Swamps and tule marshes surrounded the waterways and teemed with wildlife including aquatic mammals, fish, and abundant waterfowl. Adjacent grasslands provided food for herds of elk, antelope, and deer. Important vegetal resources included cattail roots, grasses, nuts, seeds, tule, and bulbs. The resource-rich environment allowed for permanent village sites, which typically were occupied throughout the year.

The Northern Valley Yokuts material culture included structures, watercraft, basketry, weapons, and tools fashioned primarily from local resources. The ubiquitous tule was the primary component utilized for house construction and other fiber crafts, such as basketry, mats, and cradles. Sweathouses were common; villages often had more than one, and they were typically earth-covered. Villages typically consisted of approximately 300 people with a headman guiding each tribe. The chief's duties included decisions that affected the well-being of the entire tribelet: sanctioning trade, entertaining guests, and arbitrating intra-tribal disputes. Marriage typically was informal, and patrilocality was the accepted practice following marriage. Thus, if a family had numerous sons, a circle of extended family members would inhabit the area immediately adjacent to the patriarch's home.

Trade was conducted with neighboring groups, transporting goods on tule watercraft along the San Joaquin River and its tributaries. Overland trails that headed west to the Salinan and Costanoan tribes of the Central California coast were also utilized. Trade items included domesticated dogs, which used in trade with the Miwok in exchange for baskets, bows, and arrows. In addition, the Costanoans supplied the Yokuts with mussels and abalone shells.

The population of the Yokuts declined precipitously after European contact. Spanish explorers and missionaries brought disease that decimated the Yokuts population. European contact also eroded cultural traditions and caused displacement of the natives from their lands. With the influx of American settlers and ranchers, relationships with native groups further degraded as natives began stealing livestock and horses out of desperation. The incorporation of California as a State in 1846, and the ensuing California Gold Rush of 1849 also hastened the decline of the Native peoples. By the time the United States government set aside land in the Fresno and Tule River Reserves, the Yokuts and other native peoples had nearly disappeared.

Few descendants of the Northern Valley Yokut survive today. There were about 18,000 Yokuts total in 1770. This number is reduced to 600 by the 1910 census. In the 1930 census more than 1100 are mentioned. There are no specific detailed records after 1930.

There is no indication that the Northern Valley Yokuts lived in or around the immediate Patterson area. The closest approximate location was in the Merced area, to the southeast. The records are sketchy at best and only available as notations in records from the Spanish-Mexican period. Most of the settlements, some hamlets of two or three houses, while others numbered 200-250+ occupied the tops of small. These mounds were close to a major waterway and afforded protection from seasonal flooding.

## **Historic Background**

### ***The Spanish Period (1769–1821)***

In 1772, Captain Pedro Fages, a Spanish soldier, entered the San Joaquin Valley area searching for military deserters. His diary was one among many that documented the environmental landscape and the cultural setting of the San Joaquin Valley. Captain Fages entered the area from the south, and as he emerged from the lower portion of Tejon Pass, he saw the beautiful lakes, rivers, and plains and named the most prominent lake Buena Vista (beautiful view). In 1776, Padre Francisco

Garces, traveled through the San Joaquin Valley in hopes of discovering a more direct route to Monterey.

Contact with the Spanish commenced early in the 19<sup>th</sup> Century and normally consisted of sporadic visits by small exploration parties. However, between 1805 and the 1820s, Franciscan priests from the coastal missions began recruiting converts from further inland, and a large portion of the Yokuts population was taken to various missions in San Jose, Santa Clara, Soledad, San Juan Bautista, and San Antonio. Many neophytes deserted and returned to their homes, but were sought and brought back by Spanish soldiers.

The most drastic and permanent change to the local southern Valley Yokuts way of life was the establishment of the Spanish Mission system. By the early 1800s, the mission fathers began a process of cultural change that brought the majority of the local Native Americans into the missions. At the expense of traditional skills, the Native Americans were taught the pastoral and horticultural skills of the Hispanic tradition. Spanish missionaries traveled into the San Joaquin Valley to recapture escaped neophytes and recruit inland Native Americans for the coastal missions. In 1834, the Mission system was officially secularized, and the majority of the mission Native American population dispersed to local ranches, villages, or nearby pueblos. Following the collapse of the mission system, many of the local Native Americans returned to the San Joaquin Valley, bringing with them language and agricultural practices learned from the Spanish. During the second half of the 19<sup>th</sup> century, the size of all Yokuts populations dwindled dramatically due to the spread of European settlements and the diseases the Europeans brought with them.

### ***The Mexican Period (1821–1848)***

With the declaration of Mexican independence in 1821, Spanish control of Alta California ended, although little change actually occurred. Political change did not take place until mission secularization in 1834, when Native Americans were released from missionary control and the mission lands were granted to private individuals. This changed land ownership patterns in the Fresno valley, where the raising of cattle for tallow and hides was the major economic pursuit. Shoup and Milliken (1999) state that mission secularization removed the social protection and support on which Native Americans had come to rely. It exposed them to further exploitation by outside interests, often forcing them into a marginal existence as laborers for large ranchos. Following mission secularization, the Mexican population grew as the Native American population continued to decline. Euro-American settlers began to arrive in California during this period and often married into Mexican families, becoming Mexican citizens, which made them eligible to receive land grants. In 1846, on the eve of the U.S.-Mexican War (1846 to 1848), the estimated population of California was 8,000 non-natives and 10,000 Native Americans. However, these estimates have been debated. Cook (1976) suggests the Native American population was 100,000 in 1850; the U.S. Census of 1880 reports the Native American population as 20,385.

### ***American Expansion***

In 1826, Jedediah Smith was among the first trappers to explore the San Joaquin Valley. He was awed by the Valley's abundant wildlife, and by 1827, Euro-American fur trappers, who were attracted by the numerous beaver and other game, settled in the region. The fur trappers stayed in the local area

until the discovery of gold in 1848, when they, like scores of others, traveled into the Sierra Nevada foothills to strike it rich. The discovery of gold brought an extraordinary number of people to California, and commerce in the San Joaquin Valley grew as miners on their way to the gold fields stopped for food and supplies. The influx of people also brought permanent settlers who were drawn to the area by the new business opportunities supplying the miners but who also settled in the area because of the good grazing and farmland.

In 1848, as a result of the Treaty of Guadalupe Hidalgo, California became a United States territory. Also, in 1848, John Marshall found gold at Sutter's Mill, which marked the start of the Gold Rush. The influx of miners and entrepreneurs increased the population of California, not including Native Californians, from 14,000 to 224,000 in just four years. This, in turn, stimulated commercial growth in the San Joaquin Valley as eager entrepreneurs set up business to support the miners and mining operations. When the Gold Rush was over, many of the miners settled in the San Joaquin Valley and established farms, ranches, and lumber mills.

### **Local History**

The history of Patterson begins with the measuring of the Rancho Del Puerto and the subsequent grant of the land to Mariano and Pedro Hernandez on January 30, 1844, by Manuel Micheltoreno, then Governor of California. This Mexican Land Grant was for acreage stretching east of the present day Highway 33 to the San Joaquin River. The northern boundary was Del Puerto Creek and the southern boundary was just south of present day Marshall Road.

Samuel G. Reed and Ruben S. Wade made claim to the land on January 7, 1855. A patent encompassing the land grant was signed by President Abraham Lincoln. Reed and Wade received title to 13,340 acres on August 15, 1864. Reed and Wade then sold the grant to J.O. Eldredge on June 18, 1866 for \$5,000. Mr. Eldredge held title for only 2 months before selling it to John D. Patterson on August 14, 1866 for \$5,400. John D. Patterson purchased additional land, and upon his death on March 7, 1902, a total of 18,462 acres were willed to Thomas W. Patterson and William W. Patterson, his estate executors, and other heirs. The land was sold to the Patterson Ranch Company on May 16, 1908 for the sum of \$540,000 cash gold coin.

Thomas W. Patterson subdivided the land into ranches of various sizes and plotted the design of the town of Patterson. Determined to make Patterson different from most, he modeled his town after the Cities of Washington D.C. and Paris, France, using a series of circles and radiating streets. Major streets were planted with palm, eucalyptus and sycamore trees. The Patterson Colony map was filed with the Stanislaus County Recorder's office on December 13, 1909. Sales of the ranch properties and city lots commenced. Patterson was the third city in Stanislaus County to incorporate on December 22, 1919.

With a current population of 20,875, Patterson is a rural, small town surrounded by agricultural land. With agriculture as its primary economic base, orchards of apricots, almonds and walnuts, as well as row crops of dry beans, tomatoes, broccoli, spinach, peas and melons play an important role in Patterson's history. Patterson is the apricot capital of the world.

### 3.5.3 - Records Search and Pedestrian Survey Results

#### Central California Information Center

On June 25, 2018, personnel at the Central California Information Center (CCIC) conducted a records search for the Zacharias and Baldwin Master Plan areas. The search area included both master plan areas and a 0.50-mile radius around each area. The current inventories of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks (CHL) list, the California Points of Historical Interest (CPHI) list, and the California Historical Resources Inventory (HRI) for Sonoma County were also reviewed to determine the existence of previously documented local historical resources.

Results from the records search indicate that there have been eight cultural resources recorded within a 0.50-mile radius of the Baldwin and Zacharias Master Plan boundaries, none of which are located within the master plan boundaries; refer to Table 3.5-1.

**Table 3.5-1: Known Cultural Resources within 0.50-mile of the Master Plans**

Site Number	Historic/Prehistoric	Resource Description
50-000001	Historic	Other—Southern Pacific Railroad San Joaquin Valley Mainline; Stockton & Visalia Railroad; Stockton & Tulare Railroad; Southern Pacific Railroad West Side Line; Southern Pacific Railroad, Tracy Branch; San Joaquin Valley Railroad; Southern Pacific Railroad Line
50-001903	Historic	California Aqueduct
50-001904	Historic	Delta Mendota Canal
50-001924	Historic	Patterson Irrigation District North Lateral No. 4
50-001965	Historic	Del Puerto Forest Fire Station
50-002094	Historic	ARRA-50-1H
50-002179	Historic	Patterson Lift Irrigation System; Segment 3-South; Lateral J; Segment 4-South
50-002208	Historic	Patterson Irrigation District Lateral M

Source: Central California Information Center 2019.

Results from the records search indicate that there have been 36 cultural resources studies conducted within a 0.50-mile radius of the Baldwin and Zacharias Master Plan boundaries, seven of which included a small portion of the Zacharias Master Plan boundaries, however the majority of that area has never been the subject of a cultural resources assessment in its entirety. One cultural resources study addressed the Baldwin Master Plan area in its entirety, indicating it has been previously surveyed for cultural resources; refer to Table 3.5-2.

**Table 3.5-2: Cultural Resources Reports within 0.50-mile of the Master Plans**

Report Number	Author/Date	Additional Details
ST-00621	Moratto, M. et al. 1990	Cultural Resources Assessment Report PGT-PG&E Pipeline Expansion Project in Idaho, Washington, Oregon and California; Phase 1: Survey Inventory, and Preliminary Evaluation of Cultural Resources [CCIC has only a partial copy of report].
ST-00896	Napton, L.K. 1984	Cultural Resource Investigation of the Proposed Patterson Apartments, Stanislaus County, California.
ST-00927	Pope, J.L 1978	Cultural Resources Assessment for the City of Patterson Facility Improvements Stanislaus County, California.
ST-01846	Canaday, T., Ostrogorsky, M., and Hess, M. 1992	Archaeological Survey Right-of-Way Corridor and Extra Work Spaces Construction Spread 5B, California; PGT-PG&E Pipeline Expansion Project, California.
ST-01973	Peak & Associates, Inc.	Cultural Resource Assessment of the Proposed Creekside Development, Located Near Patterson, Stanislaus County, California.
ST-02753	Moratto, M., Pettigrew, R., Price, B., Ross, L., and Schalk, R. 1994	Archaeological Investigations PGT-PG&E Pipeline Expansion Project, Idaho, Oregon, and California, Volumes 1-V (1994-1995). [Only Vol. I and IV are unbound and available at CCIC; Vol. I = Project Overview, Research Design and Archaeological Inventory; Vol. IV = Synthesis of Findings].
ST-02789	Napton, L.K. 1996	Cultural Resources Investigations of a Proposed Two-Mile Pipeline Along Sperry Avenue, Between Rogers Road and Ward Avenue in Patterson, Stanislaus County, California.
ST-03622	Wachtel, David. 1999	CDF Project Review Report for Archaeological and Historical Resources; Project: Del Puerto Apparatus Room.
ST-03630	Nave, T. 1999	Cultural Resources Survey for the Turlock Irrigation District Westside Transmission Line Project, Stanislaus and Merced Counties, California.
ST-04175	Flint, Sandra. 2000	Addendum Phase 1 Archaeological Survey for the Turlock Irrigation District Westside 115-kV Transmission Line Project.
ST-04262	David-King, Shelly. 2001	Department of Transportation Negative Archaeological Survey Report, 10-STA-33, Ivy road at State Highway 33, Stanislaus Count.
ST-05498	Leach-Palm, L., Mikkelsen, P., Hatch, J., and Larson, B. 2004	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume I: Summary of Methods and Findings.
ST-05501	Rosenthal, J.S., and Meyer, J. 2004	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume III: Geoarchaeological Study.

Report Number	Author/Date	Additional Details
ST-05502	Leach-Palm, L., King, J., Hatch, J., and Larson, B. 2004	Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways; Volume II G: Stanislaus County.
ST-06133	Sikes, N., Holmes, E., and Cervantes, J. 2006	Cultural Resources Inventory for the Westley-Marshall Substation and Transmission Line Project, Stanislaus County, California.
ST-06134	Davis-King, S., and Mavin, J. 2006	Historic Properties Survey Report for the M Street/State 33 Intersection Improvements Project, City of Patterson, Stanislaus County, California.
ST-06384	Sikes, N.E., and Arrington, C.J. 2006	Cultural Resources Inventory of Alternative substations and Transmission Lines of the Westley-Marshall Project, Stanislaus County, California.
ST-06409	Davis-King, S. 007	California Department of Transportation Historic Property Report for the Proposed Class I and II Bicycle/Pedestrian Path, City of Patterson, Stanislaus County, CA (Includes Archaeological Survey Report, Davis-King 2007 and Hist Res Prop Rep).
ST-06443	Whartford, J.C. 2007	A Historical Resources Survey Report for the Del Puerto Reconstruction Project, Del Puerto Forest Fire Station, Patterson, Stanislaus County, California.
ST-07387	Wohlgemuth, E., and Costello, J. 2010	Patterson General Plan Update: Archaeological Resources Sensitivity.
ST-07595	ICF International. 2010	Final: Cultural Resources Inventory Report for the Drought Relief Program, ARRA Groundwater Wells Project, San Joaquin, Stanislaus, Merced, and Fresno Counties, California ARRA #10-SCAO-021.
ST-07779	Bailey, J., Ph.D. 2009	California's Central Valley Project: Historic Engineering Features to 1956: A Multiple Property Documentation Form, April 2009 (National Register of Historic Places Nomination).
ST-07779A	Bailey, J., Ph.D. 2009	Reclamation, Managing Water in the West: California's Central Valley Project: Historic Engineering Features to 1956.
ST-07779B	Palmer, L. 2018	Central Valley Project (CVP), National Register of Historic Places Determinations of Eligibility, Multiple Counties, California. Bureau of Reclamation, Mid-Pacific Region Division of Environmental Affairs, Cultural Resources Branch, Sacramento.
ST-07849	Truman, E. 2010	Field Office Report of Cultural Resources Ground Survey Findings, Negative Findings, 799104105P7, Micro Sprinklers.
ST-08055	Pierce, W. 2013	Department of Water Resources Archaeological Survey Report Salado Creek Channel Maintenance Project, Stanislaus County, California.

Report Number	Author/Date	Additional Details
ST-08056	Pierce, W. 2013	Department of Water Resources Archaeological Survey Report, Del Puerto Creek Sediment Removal Project, Stanislaus County, California.
ST-08057	Pierce, W. 2014	Office Memo to L. Hamamoto, DWR from W. Pierce, Supplement to the Archaeological Survey Report for the Salado Creek Channel Maintenance Project, Stanislaus County, California.
ST-08058	Pierce, W. 2014	Office Memo to S. Fredericks, DWR, from W. Pierce, Supplement to the Archaeological Survey Report for the Del Puerto Creek Sediment Removal Project, Stanislaus County, California.
ST-08250	Supernowicz, D. 2014	Submission Packet, FCC Form 620, for Proposed New Tower Project Baldwin Road, Patterson, Stanislaus County, California Floragold/Ensite # 21839 (281353) EBI Project Number: 61148115.
ST-08250A	Davis, J.L. 2015	Addendum to FCC Form 620 Ensite #21839 (281353)/Floragold, Baldwin Road, Patterson, Stanislaus County, California 95363, EBI Project #61140081417; CA SHPO FCC_2014_1218_033.
ST-08252	Wills, C. and Cohen, D. 2011	Phase 1 Cultural Resources Assessment - West Patterson Business Park Expansion Project, City of Patterson, Stanislaus County, California.
ST-08257	Saunders, J. 2015	San Luis and Delta-Mendota Water Authority (SLDMWA) 2015 Delta-Mendota Canal (DMC) Expanded Temporary Reverse Flow Project, Stanislaus County, California (15-SCAO-184).
ST-08341	Basin Research Associates. 2014	Historic Property Survey Report North Valley Regional Recycled Water Program (NVRWP) Vicinity of Patterson, Stanislaus County.
ST-08638	Jordan, N. 2015	Letter Report: South County Corridor Feasibility Study—Cultural Resources Constraints Analysis.
ST-08794	Leigh, Anastasia T., Regional Environmental Officer. 2015	Letter Report Re: National Historic Preservation Act (NHPA) Section 106 Consultation for the City of Patterson Sewer Main under the Delta-Mendota Canal (DMC), Stanislaus County, California (15-SCAO-099).

Source: Central California Information Center, 2019.

### Native American Heritage Commission Records Search

On June 14, 2018, FirstCarbon Solutions (FCS) sent a letter to the Native American Heritage Commission (NAHC) in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the Baldwin and Zacharias Master Plan areas. The response from the NAHC was received on June 26, 2018, and noted that a search of the Sacred Lands File was negative for cultural resources on or near the master plan areas. A list of five Native American tribal members who may have additional knowledge of the project area was included with the results. These tribal members were

sent letters on April 22, 2019, asking for any additional information they might have concerning the project area. As of the date of this report, no responses have been received.

### **Pedestrian Surveys**

The CCIC records search revealed that the Baldwin Master Plan area was previously surveyed by Holman and Associates as part of the West Patterson Master Development Plan in June of 2002. Surface reconnaissance was conducted within designated parcels, using transects averaging 100 feet (30 meters) apart. The surface was carefully examined for evidence of prehistoric occupation or use (dark soils, fire effected rock, lithics, ground stone, bones etc., or historic period resources (trash scatters or dumps, foundations, features such as roads, walls, extant structures, etc.). All parcels were accessible to the surveyors although surface visibility varied according to vegetation and tilling. Plowed fields afforded 100 percent visibility, orchards varied from 50 to 90 percent depending on vegetation cover below the trees, unharvested grain crops varied from as low as 0-5 percent to 40 percent, while harvested grain fields generally afforded 20-40 percent visibility. Row crops where present afforded 50 to nearly 100 percent visibility. The Baldwin Master Plan area was surveyed in its entirety with negative results for historic or prehistoric resources. It is noted, however, that two residential buildings are present in the northeast corner of the Baldwin Master Plan boundaries located at the southern terminus of Baldwin Road. Review of historic aerials indicate the presence of buildings/structures on-site as early as 1971, and are therefore over 45 years in age. These structures have not been evaluated as potential historic resources.

The CCIC records search results revealed that the Zacharias Master Plan area had largely not been previously surveyed for cultural resources. From March 18, 2019, to March 22, 2019, FCS Senior Archaeologists, Dana DePietro, PhD, RPA, and Eric Prins, MA, conducted a series of pedestrian surveys for unrecorded cultural resources within the Zacharias Master Plan area. Surveys were conducted by parcel, and began in Assessor's Parcel Number (APN) 021-023-019 located in the northeast corner of the planning area. Both surveyors employed a combination of diagonal, vertical, and horizontal transects across each parcel to ensure complete coverage at a resolution of 15-meter intervals. After completing a parcel, the survey team moved south, surveying each successive parcel until reaching the planning area's southern boundary. At that point, the team would move one parcel to the east, and continue to survey a column of parcels from south to north. In this way, the survey team was able to cover the planning area in its entirety, over the course of 5 days, and in the following order: Survey orientation and preparatory overview was conducted on March 18, 2019. APNs 021-023-19, -020, -025, -026, -027, -024, -021, -018, -017, -022, and -023 were surveyed on March 19, 2019. APNs 021-023-016, -013, -028, -029, -014, -011, -012, -009, and -015 were surveyed on March 20, 2019. APNs 021-023-033, -001, -032, -030, -031, and -002 were surveyed on March 21, 2019. Additional spot-checking and targeted survey work was carried out across the site on March 22, 2019.

The planning area consists almost entirely of agricultural land and orchards in various stages of cultivation. As a result, soil visibility varied from parcel to parcel, but was either high (80-100 percent) in areas of recent cultivation, or low (0-10 percent) in parcels left fallow. Soil composition remained remarkably consistent across the planning area from parcel to parcel, and consisted entirely of Holocene Alluvium, as recorded on the geologic maps of Dibblee and Minch (2007) and

Sowers et al. (1993). Soils were light tan/brown in color (Muncell 10YR 5/3.5), sandy to silty in consistency, and interspersed with small (3-5 centimeter) quartz, schist, basalt, serpentine and Franciscan chert stones. None of the chert stones exhibited any signs of knapping or utilization; however, many stones appeared water-worn, attesting to their alluvial deposition over the course of the Holocene.

Over the course of the surveys, it was noted that large portions of APNs 021-023-026,-027,-011,-012,-028,-029,-032, and -033 were completely obscured by ground cover. In these areas, the survey team intermittently inspected soils in accessible sections using a hand trowel; however, a complete visual assessment was not possible. Survey conditions were documented using digital photographs and field notes. During the survey, Dr. DePietro and Mr. Prins examined all areas of the exposed ground surface for prehistoric artifacts (e.g., fire-affected rock, milling tools, flaked stone tools, tool-making debris, ceramics), soil discoloration and depressions that might indicate the presence of a cultural midden, faunal and human osteological remains, and features indicative of the former presence of structures or buildings (e.g., postholes, standing exterior walls, foundations) or historic debris (e.g., glass, metal, ceramics). Particular attention was paid to eastern halves of APNs 021-023-017,-022,-023, and -027, which run north to south in the middle of the project area, as concentrations of water worn rock were greater in the area attesting to ancient alluvial deposition and potential water resources that may have been utilized in antiquity.

The only structures of potential historic significance within the planning area are the barn, water tower, and large residence located immediately south of the intersection of Baldwin Road and Zacharias Road in the southeast corner of APN 021-023-016. These buildings appear to be over 100 years in age, are in good condition, and according to the property owners, are associated with the locally significant Zacharias family for whom the adjacent road is named. Several individual residences are also located in the Ranchette Triangle portion of the Zacharias Master Plan. Initial review of historic aerials indicates that several of these structures and properties may be over 45 years in age. None have been previously evaluated, nor were they evaluated for historic significance as part of the current study.

All areas of the project site were closely inspected for culturally modified soils or other indicators of potential historic or prehistoric resources. Aside from the Zacharias Master Plan and residences over 45 years in age, none were observed within the planning area.

### 3.5.4 - Regulatory Framework

#### Federal

##### ***National Historic Preservation Act***

The National Historic Preservation Act of 1966 (NHPA), as amended, established the NRHP, which contains an inventory of the nation's significant prehistoric and historic properties. Under 36 Code of Federal Regulations 60, a property is recommended for possible inclusion on the NRHP if it is at least 50 years old, has integrity, and meets one of the following criteria:

- It is associated with significant events in history, or broad patterns of events.

- It is associated with significant people in the past.
- It embodies the distinctive characteristics of an architectural type, period, or method of construction; or it is the work of a master or possesses high artistic value; or it represents a significant and distinguishable entity whose components may lack individual distinction.
- It has yielded, or may yield, information important in history or prehistory.

Certain types of properties are usually excluded from consideration for listing in the NRHP, but they can be considered if they meet special requirements in addition to meeting the criteria listed above. Such properties include religious sites, relocated properties, graves and cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

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#### ***Archaeological Resources Protection Act***

The Archaeological Resources Protection Act (ARPA) amended the Antiquities Act of 1906 (16 United States Code [USC] § 431–433) and set a broad policy that archaeological resources are important to the nation and should be protected, and required special permits before the excavation or removal of archaeological resources from public or Indian lands. The purpose of ARPA was to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

#### ***American Indian Religious Freedom Act***

The American Indian Religious Freedom Act (AIRFA) established federal policy to protect and preserve the inherent rights of freedom for Native groups to believe, express, and exercise their traditional religions. These rights include but are not limited to access to sites, use and possession of sacred objects, and freedom to worship through ceremonies and traditional rites.

### **State**

#### ***CEQA Definition of Historical Resources***

CEQA Guidelines Section 15064.5(a), in Title 14 of the California Code of Regulations, defines a “historical resource” as:

- (1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR.

- (2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- (3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR.
- (4) The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included on any local, State, or federal register, or identified in a qualifying historical resources survey, a lead agency may still determine that any resource is a historical resource for the purposes of CEQA if there is substantial evidence supporting such a determination. A lead agency must consider a resource to be historically significant if it finds that the resource meets the criteria for listing in the CRHR.

Archaeological and historical sites are protected pursuant to a wide variety of State policies and regulations, as enumerated in the Public Resources Code. Cultural resources are recognized as nonrenewable resources and receive additional protection under the Public Resources Code and CEQA.

### ***California Register of Historical Resources Criteria***

As defined by Section 15064.5(a)(3)(A-D) of the CEQA Guidelines, a resource shall be considered historically significant if the resource meets the criteria for listing on the CRHR. The CRHR and many local preservation ordinances have employed the criteria for eligibility to the NRHP as a model (see criteria described above under the description of the NHPA), since NHPA provides the highest standard for evaluating the significance of historic resources. A resource that meets NRHP criteria is clearly significant. In addition, a resource that does not meet NRHP standards may still be considered historically significant at a local or State level.

### ***Effects on Archaeological Resources***

The CEQA Guidelines state that a resource need not be listed on any register to be found historically significant. The CEQA guidelines direct lead agencies to evaluate archaeological sites to determine if

they meet the criteria for listing in the CRHR. If an archaeological site is a historical resource, in that it is listed or eligible for listing in the CRHR, potential adverse impacts to it must be considered. If an archaeological site is considered not to be an historical resource but meets the definition of a “unique archeological resource” as defined in Public Resources Code Section 21083.2, then it would be treated in accordance with the provisions of that section.

### ***Effects on Human Remains***

Native American human remains and associated burial items may be significant to descendant communities and/or may be scientifically important for their informational value. They may be significant to descendant communities for patrimonial, cultural, lineage, and religious reasons. Human remains may also be important to the scientific community, such as prehistorians, epidemiologists, and physical anthropologists. The specific stake of some descendant groups in ancestral burials is a matter of law for some groups, such as Native Americans (CEQA Guidelines § 15064.5(d); Public Resources Code [PRC] § 5097.98). CEQA and other California regulations regarding Native American human remains provide the following procedural requirements to assist in avoiding potential adverse effects on human remains within the contexts of their value to both descendant communities and the scientific community:

- When an initial study identifies the existence or probable likelihood that a project would affect Native American human remains, the lead agency is to contact and work with the appropriate Native American representatives identified through the NAHC to develop an agreement for the treatment and disposal of the human remains and any associated burial items (CEQA Guidelines § 15064.5(d); PRC § 5097.98).
- If human remains are accidentally discovered, the County Coroner must be contacted. If the County Coroner determines that the human remains are Native American, the Coroner must contact the NAHC within 24 hours. The NAHC must identify the Most Likely Descendant (MLD) to provide for the opportunity to make recommendations for the treatment and disposal of the human remains and associated burial items.
- If the MLD fails to make recommendations within 24 hours of notification or the project applicant rejects the recommendations of the MLD, the Native American human remains and associated burial items must be reburied in a location not subject to future disturbance within the project site (PRC § 5097.98).
- If potentially affected human remains or a burial site may have scientific significance, whether or not it has significance to Native Americans or other descendent communities, then under CEQA, the appropriate mitigation of effect may require the recovery of the scientific information of the remains/burial through identification, evaluation, data recovery, analysis, and interpretation (CEQA Guidelines § 15064.5(c)(2)).

### ***California Assembly Bill 52—Effects on Tribal Cultural Resources***

Assembly Bill 52 (AB 52) amended the CEQA statute to identify an additional category of resource to be considered under CEQA, called “tribal cultural resources.” It added Public Resources Code Section 21074, which defines “tribal cultural resources” as follows:

- (a) “Tribal cultural resources” are either of the following:
- (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    - A) Included or determined to be eligible for inclusion in the CRHR.
    - B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  - (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

## Local

### *City of Patterson*

The City of Patterson General Plan sets forth several goals and policies relevant to cultural resources:

- **Goal PR-5:** To protect Patterson’s Native American heritage.
- **Policy PR-5.1:** Review of development. The City shall refer development proposals that may adversely affect archaeological sites to the California Archaeological Inventory, Central California Information Center, at California State University, Stanislaus, for review and comment.
- **Policy PR-5.2:** Native American consultation requirements. The City shall continue to comply with the requirements Government Code Sections 65352.3 and 65352.4 which require the City to consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects.
- **Policy PR-5.3:** Mandatory avoidance of impacts. The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting with applicable State and local agencies and organizations, conducting a site evaluation as may be indicated, and mitigating any adverse impacts according to the recommendations of a qualified archaeologist. City implementation of this policy shall be guided by Appendix K of the State CEQA Guidelines.
- **Policy PR-5.4:** Protection of Native American cultural sites. The City shall ensure the protection of archaeological sites that may be culturally significant to Native Americans, even if they have lost their scientific or archaeological integrity through previous disturbance; sites that may have religious value, even though no artifacts are present; and sites that contain artifacts which may have intrinsic value, even though their archaeological context has been disturbed.
- **Goal PR-6:** To protect the area’s archaeological resources.
- **Policy PR-6.1:** Protection of archaeological resources. The City shall provide for the protection of both known and potential archaeological resources. To avoid significant damage to important archaeological sites, all available measures, including purchase of the property in fee or easement, shall be explored at the time of a development proposal. Where such

measures are not feasible and development would adversely affect identified archaeological or paleontological resources, mitigation shall be required in accordance with the relevant provisions of federal and State laws.

- **Policy PR-6.2:** Archaeologically sensitive areas. Development within an archaeologically sensitive area shall require a preliminary site survey by a qualified archaeologist knowledgeable in Native American cultures, prior to a determination of the potential environmental impacts of the project.
- **Policy PR-6.3:** Archaeological resources present. Where a preliminary site survey finds substantial archaeological resources, before permitting construction, the City shall require a mitigation plan to protect the resources. Possible mitigation measures include:
  - Requiring the presence of a qualified professional during initial grading or trenching; project redesign;
  - Covering with a layer of fill; excavation, removal and curation in an appropriate facility under the direction of a qualified professional.
- **Policy PR-6.4:** Qualified archaeologist present. Where substantial archaeological resources are discovered during construction or grading activities, all such activities in the immediate area of the find shall cease until a qualified archaeologist knowledgeable in Native American cultures can determine the significance of the resource and recommend alternative mitigation measures.
- **Policy PR-6.5:** Archaeological site records. The City shall establish and maintain archaeological site records about known sites. Specific archaeological site information shall be kept confidential to protect the resources. The City shall maintain, for public use, generalized maps showing known areas of archaeological sensitivity.

### 3.5.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, cultural resources impacts resulting from the implementation of the proposed project would be considered significant if the project would:

- a) Cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?
- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?
- c) Disturb any human remains, including those interred outside of formal cemeteries?
- d) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

- e) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

### 3.5.6 - Methodology

This evaluation focuses on whether buildout of the Master Plans would impact historic, archaeological, human remains, or tribal cultural resources.

The project may have an impact on a historical resource if construction of the project would impair a resource's eligibility for inclusion in the CRHR. Analysis is based on information collected from record searches at the Northwest Information Center (NWIC), additional archival research, pedestrian surveys, and information from historic architectural assessment of existing properties more than 45 years in age located within the project boundaries. If an identified impact would leave a resource no longer able to convey its significance, meaning that the resource would no longer be eligible for listing in the CRHR, then the project's impact would be considered a significant adverse change. According to Public Resources Code Section 15126.4(b)(1) (CEQA Guidelines), if a project adheres to the Sphere of Influence standards, the project's impact "shall generally be considered mitigated below a level of significance and thus is not significant."

The project may have an impact on an archaeological resource or human remains if construction of the project would physically damage or destroy archaeological data or human remains (including those interred outside of formal cemeteries). Analysis is based on information collected from record searches at the NWIC, the additional archival research, and pedestrian surveys.

Both direct and indirect effects of project implementation were considered for this analysis. Direct impacts are typically associated with construction and/or ground-disturbing activities, and have the potential to immediately alter, diminish, or destroy all or part of the character and quality of archaeological resources and/or historic architecture. Indirect impacts are typically associated with post-project implementation conditions that have the potential to alter or diminish the historical setting of a cultural resource (generally historic architecture) by introducing visual intrusions on existing historical structures that are considered undesirable.

### Specific Thresholds of Significance

For purposes of this analysis, the following thresholds are used to evaluate the significance of cultural and tribal cultural resources materials impacts resulting from implementation of the proposed project.

- Impair a historic resource's eligibility ability to convey its significance (i.e., affect a resource's inclusion in the NRHP or CRHR) or not adhere to the Secretary of Interior's Standards for Rehabilitation.
- Physically damage or destroy archaeological data or human remains.
- Physically damage, destroy, or otherwise adversely impact a site, feature, place, or cultural landscape with cultural value to a California Native American tribe and that is a resource determined by the City of Patterson, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

### 3.5.7 - Impacts Evaluation

#### Historic Resources

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**Impact CUL-1:** Buildout of the Master Plan may result in a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5.

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#### *Impact Analysis*

This impact assesses the potential for adverse impacts to historic resources.

#### ***Baldwin and Zacharias Master Plans***

A records search conducted on June 25, 2018, by personnel at the CCIC, failed to identify any historic buildings or structures within the Baldwin or Zacharias Master Plan Areas. A pedestrian survey of the Baldwin Master Plan area was conducted by Holman and Associates in June 2002; however, the survey made no mention of two residential buildings present in the northeast corner of the Baldwin Master Plan Area located at the southern terminus of Baldwin Road. Review of historic aerials indicate the presence of buildings/structures on-site as early as 1971, and are therefore over 45 years in age.

Similarly, a survey of the Zacharias Master Plan Area conducted by FCS in March 2019 identified several structures of potential historic significance within the planning area. A barn, water tower, and large residence located immediately south of the intersection of Baldwin Road and Zacharias Road in the southeast corner of APN 021-023-016. These buildings appear to be over 100 years in age, are in good condition, and according to the property owners, are associated with the locally significant Zacharias family for whom the adjacent road is named.

Several individual residences are also located in the Ranchette Triangle portion of the Zacharias Master Plan. Initial review of historic aerials indicates that several of these structures and properties may be over 45 years in age. None of these buildings have been previously evaluated, nor were they evaluated for historic significance as part of the current study. The alteration or demolition of an eligible historic resource would constitute a significant impact under CEQA.

Accordingly, Mitigation Measure (MM) CUL-1 requires a qualified Architectural Historian to evaluate all properties over 45 years in age within the two Master plan areas in order to determine if they are eligible for listing on the California Register of Historical Resources. If found to be eligible, the

Architectural Historian will provide direction and appropriate mitigation including but not limited to, documentation, relocation of the structure, adaptive reuse, or preservation in place. With the implementation of mitigation, impacts would be reduced to a level of less than significant.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

**MM CUL-1** Prior to the commencement of any construction or demolition activities that would affect any building or structure over 45 years in age, an architectural historian who meets the qualification standards of the Secretary of the Interior shall be retained to evaluate the property and determine if it is eligible for listing on the California Register of Historical Resources. The Architectural Historian will engage in expanded archival research and oral interviews to better document the age, periods of use, owners and residents who were associated with each potential resource. The Architectural Historian shall inspect the structure(s) to determine if any qualify as significant under CEQA Guidelines on the basis of their association with significant events or persons, state of preservation, unique design qualities, or as examples of historically important structures at the national, State and local level. If the structure is determined to not have historical significance, the Architectural Historian shall document his/her findings in a report and no further action is required. If the structure is determined to have historical significance, the Architectural Historian shall document his/her findings in the form of a Historic Resource Assessment report that shall be prepared for each structure along with all appropriate Department of Parks and Recreation (DPR) building and structure recordation forms. The Historic Resource Assessment shall be submitted to the City of Patterson, State Historic Preservation Office, and the Central California Information Center as required. In the event any of the structures are found to be significant, the Architectural Historian will be retained to design a Historic Property Treatment Plan that adheres to the Secretary of the Interior's guidelines for the treatment of historic properties, and provides mitigation to reduce potential impacts to historic resources to a less than significant level. Such mitigation may include, but is not limited to:

- Preservation in place of significant structures or rehabilitation for re-use appropriate for the proposed development.
- Relocation of significant structures to locations outside of the disturbance area or renovation for re-use.
- Complete photo documentation and architectural recording for archival purposes, salvage of elements of the structures for re-use elsewhere or for display at local historical venues prior to demolition.

### ***Level of Significance After Mitigation***

Less than significant Impact.

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## Archaeological Resources

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**Impact CUL-2: Buildout of the Master Plan may result in a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.**

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### ***Impact Analysis***

This impact assesses the potential for adverse impacts to archaeological resources.

### ***Baldwin and Zacharias Master Plans***

A records search conducted on June 25, 2018, by personnel at the CCIC, a pedestrian survey of the Baldwin Master Plan area conducted by Holman and Associates in June 2002, and a pedestrian survey of the Zacharias Master Plan Area conducted by FCS in June of 2019, failed to identify any recorded or previously unrecorded archaeological resources within the Baldwin and Zacharias Master Plan boundaries.

Nonetheless, subsurface earthwork activities have the potential to encounter undiscovered historic or prehistoric archaeological resources. Such resources could consist of, but are not limited to stone, bone, wood, or shell artifacts or features, including hearths, dumpsites, and structural elements. This represents a potentially significant impact related to archeological resources. Accordingly, MM CUL-2 requires standard inadvertent discovery procedures to be implemented in the event resources are encountered. With the implementation of mitigation, impacts would be reduced to a level of less than significant.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

**MM CUL-2** In the event a potentially significant cultural resource is encountered during subsurface earthwork activities, all construction activities within a 100-foot radius of the find shall cease and workers should avoid altering the materials until a qualified Archaeologist who meets the Secretary of Interior’s Professional Qualification Standards for archaeology has evaluated the situation. The applicant shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction activities shall be recorded on appropriate Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of CEQA criteria by a qualified Archaeologist. Potentially significant cultural resources consist of but are not limited to stone, bone, glass, ceramics, wood, or shell artifacts, or features including hearths, structural remains, or historic dumpsites. If the resource is determined to be significant under CEQA, the qualified Archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant in accordance with Section 15064.5 of the CEQA Guidelines. The Archaeologist shall also perform appropriate technical analyses, prepare a comprehensive report complete with methods, results, and recommendations, and provide for the permanent curation or

repatriation of the recovered resources in cooperation with the designated Most Likely Descendant (MLD) as needed. The report shall be submitted to the City of Patterson, the Central California Information Center (CCIC), and the California Office of Historic Preservation (OHP), as required.

### ***Level of Significance After Mitigation***

Less than significant impact.

### **Human Remains / Burial Sites**

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**Impact CUL-3:** Buildout of the Master Plan may result in disturbance to human remains, including those interred outside of formal cemeteries.

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### ***Impact Analysis***

This impact assesses the potential for adverse impacts to human remains.

### ***Baldwin and Zacharias Master Plans***

No cemeteries or human remains have been recorded within either master plan area, however, subsurface construction activities associated with the projects, such as trenching and grading, could potentially damage or destroy previously undiscovered human remains. This would represent a potentially significant impact.

In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 must be followed. In the unlikely event that human remains are discovered, implementation of MM CUL-3 would reduce the construction impact related to previously undiscovered human remains to less than significant with mitigation.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

**MM CUL-3** In the event of the accidental discovery or recognition of any human remains, CEQA Guidelines Section 15064.5, Health and Safety Code Section 7050.5, and Public Resources Code Sections 5097.94 and Section 5097.98 shall be followed. If during the course of project construction, there is accidental discovery or recognition of any human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance within 100 feet of the remains until the Stanislaus County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the Coroner determines the remains to be Native American, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours, and the NAHC shall identify the person or persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD may

make recommendations to the landowner or the person responsible for the excavation work within 48 hours, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.

2. Where the following conditions occur, the landowner or his or her authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendant or on the project site in a location not subject to further subsurface disturbance:
  - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission.
  - The descendant identified fails to make a recommendation.
  - The landowner or his authorized representative rejects the recommendation of the descendant, and mediation by the NAHC fails to provide measures acceptable to the landowner.

Additionally, California Public Resources Code Section 15064.5 requires the following relative to Native American Remains:

- When an initial study identifies the existence of, or the probable likelihood of, Native American Remains within a project, a lead agency shall work with the appropriate Native Americans as identified by the Native American Heritage Commission as provided in Public Resources Code Section 5097.98. The applicant may develop a plan for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American Burials with the appropriate Native Americans as identified by the Native American Heritage Commission.

### ***Level of Significance After Mitigation***

Less than significant impact.

### **Listed or Eligible Tribal Cultural Resources**

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<b>Impact CUL-4:</b>	<b>Buildout of the Master Plans would not result in a substantial adverse change in the significance of a Tribal Cultural Resource.</b>
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### ***Impact Analysis***

This impact assesses the potential for adverse impacts to tribal cultural resources.

### ***Baldwin and Zacharias Master Plans***

No listed or potentially eligible tribal cultural resources have been identified within the either master plan area. Specifically, a review of the CRHR, the NAHC Sacred Lands File, a records search conducted at the CCIC, and pedestrian surveys of both master plan areas failed to identify any listed tribal

cultural resources that could be adversely affected by construction of the proposed project. As such, there are no known eligible or potentially eligible tribal cultural resources that could be adversely affected by the proposed project. Therefore, no construction impacts related to previously listed or eligible tribal cultural resources would occur.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

No mitigation is required.

***Level of Significance After Mitigation***

Less than significant impact.

**Lead Agency Determined Tribal Cultural Resources**

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**Impact CUL-5: Buildout of the Master Plans would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.**

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***Construction***

On June 14, 2018, FCS sent a letter to the NAHC in an effort to determine whether any sacred sites are listed on its Sacred Lands File for the Zacharias and Baldwin Master Plan areas. The response from the NAHC was received on June 26, 2018, and noted that a search of the Sacred Lands File was negative for cultural resources on or near the master plan areas. A list of five Native American tribal members who may have additional knowledge of the project area was included with the results. These tribal members were sent letters on April 22, 2019, asking for any additional information they might have concerning the project area. As of the date of this report, no responses have been received. Additionally, the City of Patterson provided formal notification to applicable Native American Governments pursuant to California AB 52 and Senate Bill 18 (SB 18). No additional comments or requests for consultation have been received to date.

The City of Patterson, in its capacity as lead agency, has also not identified or determined any tribal cultural resources to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. However, there is always a possibility that previously undiscovered tribal cultural resources may be encountered during project-related ground disturbance. Implementation of MM CUL-1, MMCUL-2, and MM CUL-3 that construction be stopped upon encountering archaeological or human remains. Therefore, construction impacts related to lead agency determined tribal cultural resources would less than significant with mitigation.

***Level of Significance Before Mitigation***

Potentially significant impact.

***Mitigation Measures***

Implementation of MM CUL-1, MM CUL-2, and MM CUL-3

***Level of Significance After Mitigation***

Less than significant Impact.

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## 3.6 - Geology, Soils, and Seismicity

### 3.6.1 - Introduction

This section describes the existing geology, soils, and seismicity setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on a Preliminary Report for Geotechnical Services prepared by Kleinfelder, the City of Patterson General Plan Environmental Impact Report (EIR), the West Patterson Projects Final EIR, and information provided by the Natural Resources Conservation Service's Web Soil Survey.

### 3.6.2 - Environmental Setting

#### Regional Geology

The City of Patterson is located in the Great Valley Geomorphic Province of California, commonly referred to as the San Joaquin Valley. The San Joaquin Valley consists of alluvial fans extending from the Sierra Nevada Range to the east, the Coastal Range to the west, and the Tehachapi Mountains to the south. Weathering of these mountain ranges combined with surface water flows and flooding have resulted in the accumulation of alluvial (river), lacustrine (lake), and marine (ocean) deposits throughout the San Joaquin Valley. Patterson is located on the western side of the San Joaquin Valley at the base of the Diablo Range foothills. As indicated by the City of Patterson General Plan Update EIR, landforms range from ancient pre-Quaternary and early Pleistocene hills and alluvial fans along the western boundary, to Middle and Late Holocene alluvial fans and terraces further east, to latest Holocene terraces along the San Joaquin River and Del Puerto Creek. Soils are largely alluvial in origin, particularly east of Interstate 5 (I-5). Most alluvial soils are derived from the Coast Range alluvial fans with the exception of areas near the San Joaquin River.

#### Seismicity

The term seismicity describes the effects of seismic waves that are radiated from an earthquake as it ruptures. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves.

#### Faulting

Faults form in rocks when stresses overcome the internal strength of the rock, resulting in a fracture. Large faults develop in response to large, regional stresses operating over a long time, such as those stresses caused by the relative displacement between tectonic plates. According to the elastic rebound theory, these stresses cause strain to build up in the earth's crust until enough strain has built up to exceed the strength along a fault and cause a brittle failure. The slip between the two stuck plates or coherent blocks generates an earthquake. Following an earthquake, strain will build once again until the occurrence of another earthquake. The magnitude of slip is related to the maximum allowable strain that can be built up along a particular fault segment. The greatest buildup in strain that is due to the largest relative motion between tectonic plates or fault blocks over the longest period of time will generally produce the largest earthquakes. The distribution of these earthquakes is a study of much interest for both hazard prediction and the study of active

deformation of the Earth's crust. Deformation is a complex process, and strain caused by tectonic forces is not only accommodated through faulting but also by folding, uplift, and subsidence, which can be gradual or in direct response to earthquakes.

Faults are mapped to determine earthquake hazards, since they occur where earthquakes tend to recur. A historic plane of weakness is more likely to fail under stress and strain than a previously unbroken block of crust. Faults are, therefore, a prime indicator of past seismic activity, and faults with recent activity are presumed to be the best candidates for future earthquakes. However, since slip is not always accommodated by faults that intersect the surface along traces, and since the orientation of stresses and strain in the crust can shift, predicting the location of future earthquakes is complicated. Earthquakes sometimes occur in areas with previously undetected faults or along faults previously thought inactive.

According to the City of Patterson General Plan EIR, the San Andreas, Hayward, San Joaquin, Calaveras, Green Valley-Concord, Midland, Patterson Pass, and Tesla-Ortigliata faults are active faults close to Patterson. However, none of them are located within the city limits or General Plan planning area.

### **Seismic Hazards**

Seismicity describes the effects of seismic waves that are radiated from an earthquake as it ruptures. While most of the energy released during an earthquake results in the permanent displacement of the ground, as much as 10 percent of the energy may dissipate immediately in the form of seismic waves. To understand the implications of seismic events, a discussion of faulting and seismic hazards is provided as follows.

Seismic hazards pose a substantial danger to property and human safety and are present because of the risk of naturally occurring geologic events and processes impacting human development. Therefore, the hazard is influenced as much by the conditions of human development as by the frequency and distribution of major geologic events. Seismic hazards present in California include ground rupture along faults, strong seismic shaking, liquefaction, ground failure, landsliding, and slope failure.

### **Fault Rupture**

Fault rupture is a seismic hazard that affects structures sited above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault during an earthquake. Typically, this movement takes place during the short time of an earthquake, but it also can occur slowly over many years in a process known as creep. Most structures and underground utilities cannot accommodate the surface displacements of several inches to several feet commonly associated with fault rupture or creep.

Areas at risk for fault rupture are typically identified as Alquist-Priolo Earthquake Fault Zones. There are no Alquist-Priolo Earthquake Fault Zones within or adjacent to the City of Patterson.

### **Ground Shaking**

The severity of ground shaking depends on several variables such as earthquake magnitude, epicenter distance, local geology, thickness, seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Ground shaking hazards are most pronounced in areas near faults or with unconsolidated alluvium.

Based on observations of damage from recent earthquakes in California (e.g., San Fernando 1971, Whittier-Narrows 1987, Landers 1992, Northridge 1994), ground shaking is responsible for 70 to 100 percent of all earthquake damage. The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage from falling objects or broken utility lines. Fire and explosions are also hazards associated with strong ground shaking.

### **Ground Failure**

Ground failure includes liquefaction and the liquefaction-induced phenomena of lateral spreading, and lurching.

Liquefaction is a process by which sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels. The process of liquefaction involves seismic waves passing through saturated granular layers, distorting the granular structure, and causing the particles to collapse. This causes the granular layer to behave temporarily as a viscous liquid, resulting in liquefaction.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Lateral spreading is lateral ground movement, with some vertical component, caused by liquefaction. In effect, the soil rides on top of the liquefied layer. Lateral spreading can occur on relatively flat sites with slopes less than 2 percent, under certain circumstances, and can cause ground cracking and settlement.

Lurching is the movement of the ground surface toward an open face when the soil liquefies. An open face could be a graded slope, stream bank, canal face, gully, or other similar feature.

The City of Patterson General Plan EIR indicates that Patterson is theoretically subject to liquefaction resulting from earthquakes on several faults. The expected degree of earthquake-caused shaking, however, is relatively low, and it is unlikely that significant liquefaction would occur.

**Landslides and Slope Failure**

Landslides and other forms of slope failure form in response to the long-term geologic cycle of uplift, mass wasting, and disturbance of slopes. Mass wasting refers to a variety of erosional processes from gradual downhill soil creep to mudslides, debris flows, landslides and rock fall—processes that are commonly triggered by intense precipitation, which varies according to climactic shifts. Often, various forms of mass wasting are grouped together as landslides, which are generally used to describe the downhill movement of rock and soil.

Geologists classify landslides into several different types that reflect differences in the type of material and type of movement. The four most common types of landslides are translational, rotational, earth flow, and rock fall. Debris flows are another common type of landslide similar to earth flows, except that the soil and rock particles are coarser. Mudslide is a term that appears in non-technical literature to describe a variety of shallow, rapidly moving earth flows.

The City of Patterson and its surrounding areas are generally level, precluding the occurrence of landslides.

**Soils**

The United States Department of Agriculture Soil Conservation Service indicates that six soil types underline the project site. The soil properties are summarized in Table 3.6-1. A soil map is provided in Exhibit 3.2-2 in Section 3.2, Agricultural Resources.

**Table 3.6-1: Soils Summary**

Soil Name	Properties	Hydrologic Group	Natural Drainage Class
Capay Clay	0 to 1 percent slopes	Group C – Sandy clay loam. They have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.	Moderately well drained
	0 to 1 percent slopes, loamy substratum	Group D – Clay loam, silty clay loam, sandy clay, silty clay or clay. This group has the highest runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material.	Moderately well drained
	0 to 1 percent slopes, rarely flooded	Group C – Sandy clay loam. They have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.	Moderately well drained
Vernalis loam	0 to 2 percent slopes	Group B – Silt loam or loam. It has a moderate infiltration rate when thoroughly wetted and consists chiefly or moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.	Well drained

Soil Name	Properties	Hydrologic Group	Natural Drainage Class
	0 to 2 percent slopes, rarely flooded	Group B – Silt loam or loam. It has a moderate infiltration rate when thoroughly wetted and consists chiefly or moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.	Well drained
Vernalis-Zacharias complex	0 to 2 percent slopes, rarely flooded	Group C – Sandy clay loam. They have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.	Well drained
Zacharias clay loam	0 to 2 percent slopes, rarely flooded	Group C – Sandy clay loam. They have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.	Well drained
Zacharias gravelly clay loam	0 to 2 percent slopes, rarely flooded	Group C – Sandy clay loam. They have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.	Well drained
Cortina gravelly sandy loam	0 to 5 percent slopes, rarely flooded	Group A – Sand, loamy sand or sandy loam types of soils. It has low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.	Somewhat excessively drained
Elsalado loam	0 to 2 percent slopes, rarely flooded	Group B – Silt loam or loam. It has a moderate infiltration rate when thoroughly wetted and consists chiefly or moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.	Well drained

Source: Natural Resources Conservation Service 2019.

### Subsurface Investigation

Kleinfelder prepared Preliminary Report for Geotechnical Services for the Keystone Ranch portion of the Zacharias Master Plan in 2007. The report found that near surface soils consist of moderate to highly plastic sandy and silty clay that extended to depths of 1.5 to 9.5 feet below ground surface. The soils beneath the surface clay consist of interbedded and discontinuous layers of sandy and clayey silt; silty, clayey, and relatively clean sand; and silty and sandy clay to the depths explored. Groundwater was not encountered in any borings.

### Subsidence

The Delta-Mendota Canal has experienced subsidence as a result of groundwater pumping in the San Joaquin Valley. The San Luis & Delta-Mendota Water Authority provided information for subsidence surveys conducted between 2014 and 2018 indicating that 6 inches of subsidence was recorded in the Patterson area along the canal alignment. Subsidence has the potential to reduce the conveyance capacity of the Delta-Mendota Canal.

### 3.6.3 - Regulatory Framework

#### State Regulations

##### ***Alquist-Priolo Earthquake Fault Zoning Act***

The Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code [PRC] § 2621– 2630) was passed in 1972 to provide a statewide mechanism for reducing the hazard of surface fault rupture to structures used for human occupancy. The main purpose of the Act is to prevent the siting of buildings used for human occupancy across the traces of active faults. It should be noted that the Act addresses the potential hazard of surface fault rupture and is not directed toward other earthquake hazards, such as seismically-induced ground shaking or landslides.

The law requires the State Geologist to identify regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones) around the surface traces of active faults, and to depict these zones on topographic base maps, typically at a scale of 1 inch to 2,000 feet. Earthquake Fault Zones vary in width, although they are often 0.75-mile wide. Once published, the maps are distributed to the affected cities, counties, and State agencies for their use in planning and controlling new or renewed construction. With the exception of single-family wood-frame and steel-frame dwellings that are not part of a larger development (i.e. four units or more), local agencies are required to regulate development within the mapped zones. In general, construction within 50 feet of an active fault zone is prohibited.

##### ***Seismic Hazards Mapping Act***

The Seismic Hazards Mapping Act (PRC § 2690–2699.6), which was passed in 1990, addresses earthquake hazards other than surface fault rupture. These hazards include strong ground shaking, earthquake-induced landslides, liquefaction, or other ground failures. Much like the Alquist-Priolo Earthquake Fault Zoning Act discussed above, these seismic hazard zones are mapped by the State Geologist to assist local government in the land use planning process. The Act states, “it is necessary to identify and map seismic hazard zones in order for cities and counties to adequately prepare the safety element of their general plans and to encourage land use management policies and regulations to reduce and mitigate those hazards to protect public health and safety.” The Act also states, “cities and counties shall require, prior to the approval of a project located in a seismic hazard zone, a geotechnical report defining and delineating any seismic hazard.”

##### ***California Building Code***

The State of California provides minimum standards for building design through the California Building Standards Code (California Code of Regulations, Title 24). Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The California Building Standards Code (CBC) applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with more detailed and/or more stringent regulations.

The State earthquake protection law (California Health and Safety Code § 19100 *et seq.*) requires that structures be designed to resist stresses produced by lateral forces caused by wind and

earthquakes. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

## Local

### **City of Patterson**

#### *General Plan*

The City of Patterson General Plan sets forth the following goal and policies relevant to geology, soils, and seismicity:

- **Goal HS-1:** To prevent loss of life, injury, and property damage due to geologic and seismic hazards.
- **Policy HS-1.1:** Geotechnical reports. The City shall require the preparation of geotechnical reports and impose appropriate mitigation measures to ensure, within the limits of technical and economic feasibility, that new structures are able to withstand the effects of seismic activity, including liquefaction, slope instability, expansive soils or other geologic hazards.
- **Policy HS-1.2:** Seismic resistant utilities. Underground utilities, particularly water and natural gas mains, shall be designed to withstand seismic forces in accordance with state requirements.

### **3.6.4 - Methodology**

FCS evaluated potential impacts on geology, soils, and seismicity through review of a Preliminary Report for Geotechnical Services prepared by Kleinfelder, the City of Patterson General Plan EIR, seismic hazard mapping, and the Natural Resources Conservation Service's Web Soil Survey.

### **3.6.5 - Thresholds of Significance**

According to the California Environmental Quality Act (CEQA) Guidelines Appendix G Environmental Checklist, to determine whether impacts to geology and soils are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:
  - i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
  - ii. Strong seismic ground shaking?
  - iii. Seismic-related ground failure, including liquefaction?
  - iv. Landslides?
- b) Result in substantial soil erosion or the loss of topsoil?

- c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?
- e) 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?
- f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

### 3.6.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

#### Earthquakes

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**Impact GEO-1:**      **The project may expose persons within the Master Plan areas to seismic hazards including fault rupture, strong ground shaking, liquefaction, or landsliding.**

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#### *Impact Analysis*

This impact evaluates potential exposure of the proposed project site to seismic hazards, including fault rupture, strong ground shaking, ground failure and liquefaction, and landslides.

#### ***Baldwin and Zacharias Master Plans***

##### *Fault Rupture*

There are no Alquist-Priolo Earthquake Fault Zones within or near Patterson. This condition precludes the possibility of exposure to fault rupture. No impacts would occur.

##### *Ground Shaking*

The California Geological Survey maintains a web-based computer model that estimates probabilistic seismic ground motions for any location within California. The computer model estimates the 'Design Basis Earthquake' ground motion, which is defined as the peak ground acceleration with a 10 percent chance of exceedance in 50 years (475-year return period). For alluvium soil type, on which the project site is located, the estimated peak ground acceleration is approximately 0.45g.

Development contemplated by the Master Plans area may be exposed to strong ground shaking during an earthquake in the general region. New development would implement all applicable requirements of the most recent CBC, which provides criteria for the seismic design of buildings. Seismic design criteria account for peak ground acceleration, soil profile, and other site conditions, and they establish corresponding design standards intended primarily to protect public safety and secondly to minimize property damage. Mitigation Measure (MM) GEO-1 is proposed that would require the project applicant to submit site plans to City of Patterson for review and approval that

demonstrate that proposed project's plans incorporate all applicable seismic design criteria of the latest edition of the CBC. Accordingly, potential ground shaking impacts would be reduced to a level of less than significant.

#### *Ground Failure and Liquefaction*

Liquefaction occurs when saturated soil loses shear strength and deforms as a result of increased pore water pressure induced by strong ground shaking during an earthquake. As the excess pore pressure dissipates, volume changes are produced within the liquefied soil layer that can manifest at the ground surface as settlement of structures, floating of buried structures, and failure of retaining walls. Soil types most susceptible to liquefaction are saturated, loose, sandy soils. Clay soils are not typically susceptible to liquefaction. As shown in Table 3.6-1, the soils within the project site consist of clay, loam, clay loam, and gravely clay loam. Because of the presence of clay within these soils, ground failure or liquefaction is unlikely to occur during a seismic event. Impacts would be less than significant.

#### *Landsliding*

The Zacharias Master Plan area contains mostly flat relief. There are no steep slopes susceptible to landsliding near the Master Plan area. Impacts would be less than significant level.

The Baldwin Master Plan area contains mostly flat relief. The Delta-Mendota Canal abuts the west and south side of the Master Plan area. The canal sits on an engineered embankment and, therefore, unlikely to experience landslides. Impacts would be less than significant level.

#### ***Level of Significance Before Mitigation***

Potentially significant impact.

#### ***Mitigation Measures***

**MM GEO-1** Prior to the issuance of building permits, the project applicant shall submit a design-level geotechnical study and building plans to the City of Patterson for review and approval. The design-level geotechnical study shall be prepared by a qualified Engineer and shall identify grading and building practices necessary to ensure stable building conditions, including the abatement of expansive soil conditions on the project site. The project applicant shall implement the recommendations of the approved geotechnical study into project plans. The project's building plans shall demonstrate that they incorporate all applicable recommendations of the geotechnical study and comply with all applicable requirements of the latest adopted version of the California Building Standards Code (CBC). A licensed Professional Engineer (PE) shall prepare the plans, including those that pertain to soil engineering, structural foundations, pipeline excavation, and installation. The approved plans shall be incorporated into the proposed project. All on-site soil engineering activities shall be conducted under the supervision of a licensed Geotechnical Engineer (GE) or Certified Engineering Geologist (CEG).

**Level of Significance After Mitigation**

Less than significant impact.

**Soil Erosion or Topsoil Loss**

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**Impact GEO-2:** The project may result in substantial soil erosion or the loss of topsoil.

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**Impact Analysis**

This impact addresses the potential for erosion.

**Baldwin and Zacharias Master Plans**

Construction activities associated with the proposed project would involve grading, excavation, and trenching activities that could expose barren soils to sources of wind or water, resulting in the potential for erosion and sedimentation on and off the project site. National Pollutant Discharge Elimination System (NPDES) stormwater permitting programs regulate stormwater quality from construction sites, which includes erosion and sedimentation. Under the NPDES permitting program, the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) are required for construction activities that would disturb an area of 1 acre or more. The SWPPP must identify potential sources of erosion or sedimentation that may be reasonably expected to affect the quality of stormwater discharge as well as identify and implement Best Management Practices (BMPs) that ensure the reduction of these pollutants during stormwater discharges. Typical BMPs intended to control erosion include sand bags, detentions basins, silt fencing, storm drain inlet protection, street sweeping, and monitoring of water bodies.

These requirements have been incorporated into the proposed project under MM HYD-1. The implementation of a SWPPP and its associated BMPs would reduce potential erosion impacts to a level of less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

Implement Mitigation Measure HYD-1.

**Level of Significance After Mitigation**

Less than significant impact.

**Unstable Geologic Units or Soils**

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**Impact GEO-3:** The project may be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

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**Impact Analysis**

This impact addresses the potential for exposure to unstable geologic units or soils.

### ***Baldwin and Zacharias Master Plans***

The Zacharias Master Plan area contains near surface soils consisting of moderate to highly plastic sandy and silty clay that extended to depths of 1.5 to 9.5 feet below ground surface. The soils beneath the surface clay consist of interbedded and discontinuous layers of sandy and clayey silt; silty, clayey, and relatively clean sand; and silty and sandy clay to the depths explored. Groundwater was not encountered in any borings. Overall, these soils are suitable to support urban development.

As part of the proposed project, the project site would be graded, and the soils underlying the building pads would be engineered in accordance the recommendations of a design-level geotechnical study and the requirements of the CBC. This requirement is established by MM GEO-1. This process would involve removal of any encountered unsuitable soils, the placement of engineered fill, and compaction in order to ensure that the proposed structures are adequately supported. These practices would ensure that the proposed project is located on stable soils and geologic units and would not be susceptible to settlement or ground failure. Therefore, the implementation of MM GEO-1 would reduce impacts to a level of less than significant.

#### *Subsidence*

The San Luis & Delta-Mendota Water Authority provided comments to the City of Patterson during the scoping process expressing concern about subsidence along the Delta-Mendota Canal. The agency has stated that groundwater pumping in the Patterson area is directly responsible for the subsidence along the canal.

The proposed project would be supplied with potable water by the City of Patterson, which pumps groundwater from the lower aquifer and non-potable water from the upper aquifer. The City pumps from a well field near the San Joaquin River, approximately 2 miles from the Delta-Mendota Canal; refer to Exhibit 3.6-1. (To be clear, the City does not pump water near the Delta-Mendota Canal and, thus, the subsidence along the facility is attributable to pumping practices by others).

Exhibit 3.6-1 depicts the change in water consumption practices that will occur at buildout of the Master Plan. The agricultural users within the Master Plan boundaries receive surface water from the San Joaquin River, as well as conveyance from the Patterson Irrigation District, and the West Stanislaus Irrigation District. Some of the agricultural users supplement with groundwater pumping. When development occurs, existing surface deliveries and groundwater pumping would cease, and urban users would be served with potable water provided by the City of Patterson.

The City of Patterson has studied both aquifers during the past 20 years and has identified safe yields<sup>1</sup> of 8,900 acre-feet per year (lower) and 3,500 acre-feet (upper). At General Plan buildout, the City is forecast to pump 6,986 acre-feet from the lower aquifer and 3,220 acre-feet from the upper aquifer. The Master Plan areas are included in the General Plan buildout numbers. Thus, while buildout of the Master Plans would increase municipal groundwater pumping, it would be within the safe yield. Refer to Section 3.15, Utilities and Service Systems, for a detailed discussion of water.

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<sup>1</sup> "Safe yield" represents the rate of replacement.

In sum, buildout of the Master Plans would eliminate surface water consumption and groundwater pumpage within its boundaries. While additional pumping would occur near the San Joaquin River, this would be within the safe yield of the aquifer and far enough away from the Delta-Mendota Canal that it would not aggravate the existing subsidence conditions. Moreover, given that surface water use would cease within the Master Plan area, the project does increase exposure to the potential reduction in conveyance capacity for the Delta-Mendota Canal from subsidence.

For these reasons, the proposed Master Plan would not substantially exacerbate existing subsidence associated with the Delta-Mendota Canal. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

**Expansive Soils**

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**Impact GEO-4:** The project may be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

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**Impact Analysis**

This impact addresses the potential for exposure to expansive soils.

**Baldwin and Zacharias Master Plans**

The United States Department of Agriculture Natural Resource Conservation Service indicates that the project site contains Capay clay, which exhibits a high shrink-swell potential, a characteristic of expansive soils. Other on-site soils containing clay may also exhibit high shrink-swell potential. Accordingly, the development of the proposed project may expose persons and structures to hazards associated with expansive soils. Implementation of MM GEO-1 would require the project applicant to submit a design-level geotechnical study to the City of Patterson identifying measures to abate expansive soil conditions. Implementation of MM GEO-1 would reduce potential impacts related to expansive soils to less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

Implement MM GEO-1.

### **Level of Significance After Mitigation**

Less than significant impact.

### **Paleontological Resources**

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**Impact GEO-5: The project may impact undiscovered paleontological resources.**

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#### **Impact Analysis**

This impact addresses the potential for encountering paleontological resources.

#### **Baldwin and Zacharias Master Plans**

Although no paleontological resources were observed during the field survey, Pleistocene alluvium is ranked as highly sensitive for significant paleontological resources. Although a paleontological survey is not warranted, there is the possibility of project excavations that occur 10 feet or more below ground surface may impact significant paleontological resources. As such, MM GEO-5 requires the implementation of examination and recovery procedures in the event fossils and other paleontological resources are encountered during construction. With the implementation of this mitigation measure, impacts would be reduced to a level of less than significant.

Paleontological records searches were conducted for each parcel at the University of California Museum of Paleontology (UCMP); refer to Appendix D. The results of the records search indicate that the entire project site is located solely on Holocene alluvium (Qf). The surrounding half-mile search area (dashed black line) also includes Los Banos alluvium (Qlb) extending from the west. Holocene deposits are too young to contain fossils, while Pleistocene alluvium has a high paleontological sensitivity.

It is unlikely that earth-disturbing project activities within the Zacharias or Baldwin master plan boundaries would impact significant paleontological resources because the entire site area is mapped as Holocene and older deposits probably lie at a depth well below the deepest project-related excavations. Therefore, a preconstruction paleontological survey of the terrain or paleontological monitoring of construction activities is not recommended or required. Although highly unlikely, should any vertebrate fossils (i.e., bones, teeth) be unearthed, the implementation of MM GEO-5 would ensure that the construction crew would divert operations from the find until a paleontologist examines it and, if deemed significant, salvages it in a timely manner for deposition in an accredited repository such as the UCMP.

### **Level of Significance Before Mitigation**

Potentially significant impact.

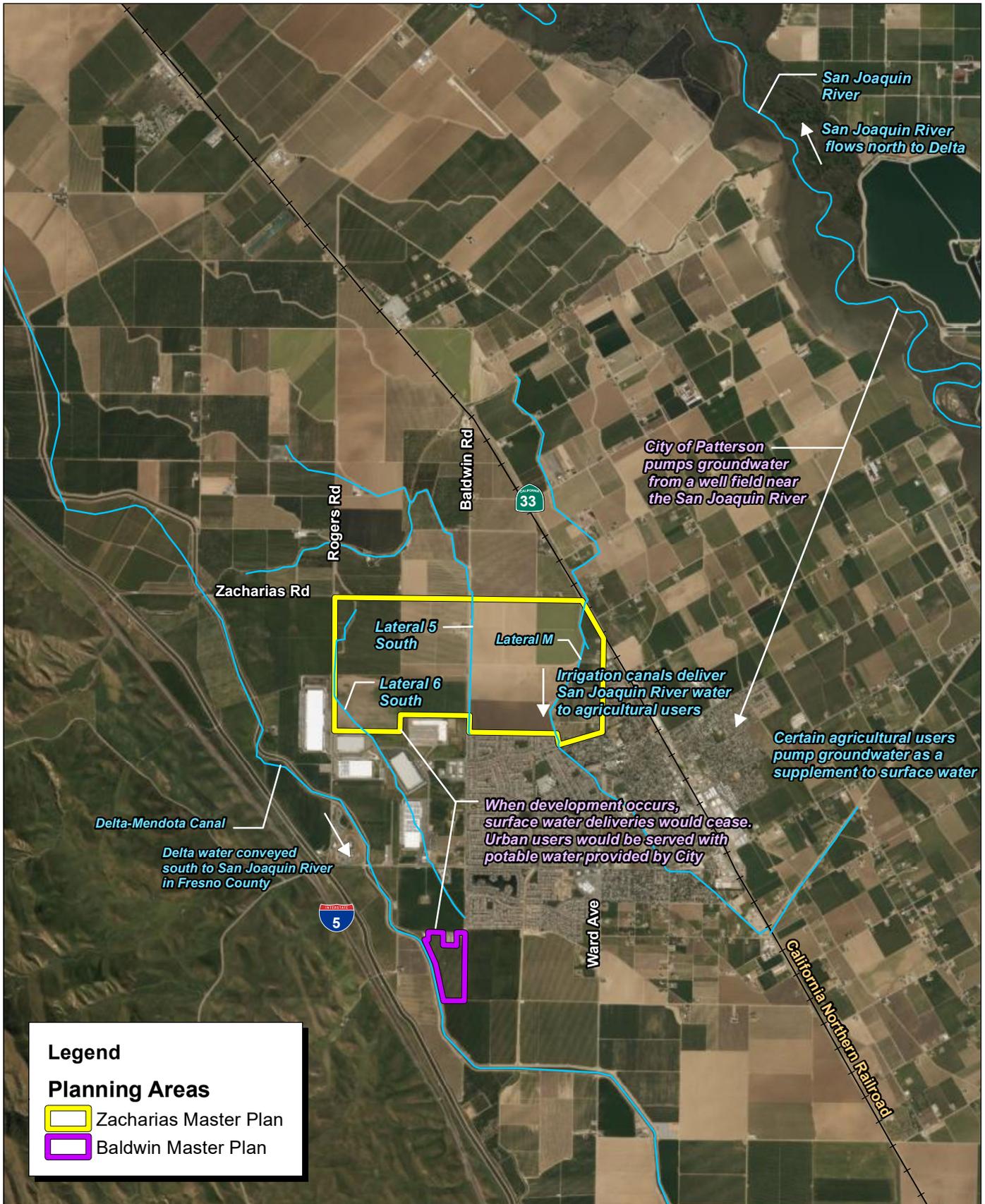
#### **Mitigation Measures**

**MM GEO-5** In the event a fossil or fossil formations are discovered during any subsurface construction activities associated with buildout of the Master Plans, all excavations within 100 feet of the find shall be temporarily halted until the find is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards. The paleontologist shall notify the City of Patterson, who shall coordinate

with the paleontologist concerning any necessary investigation of the find. If the find is determined to be significant under CEQA, the City, based on the recommended mitigation measures of the qualified paleontologist, shall require the applicant to implement those measures, which may include avoidance, preservation in place, or other appropriate measures, as outlined in Public Resources Code Section 21083.2.

***Level of Significance After Mitigation***

Less than significant impact.



Source: ESRI Aerial Imagery.

**Legend**

**Planning Areas**

- Zacharias Master Plan
- Baldwin Master Plan



**Exhibit 3.6-1**  
**Change in Water Consumption Practices**

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## 3.7 - Greenhouse Gas Emissions and Energy

### 3.7.1 - Introduction

This section describes the existing greenhouse gas (GHG) emissions and energy setting as well as the relevant regulatory framework. This section also evaluates the potential impacts related to GHG emissions and energy that could result from implementation of the project. Information in this section is based, in part, on GHG emissions and energy modeling outputs included in Appendix C.

### 3.7.2 - Environmental Setting

#### Greenhouse Effect, Global Warming, and Climate Change

Most of the energy that affects the Earth's climate comes from the sun. Some solar radiation is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected by the atmosphere back toward space. As the Earth absorbs high-frequency solar radiation, its surface gains heat and then re-radiates lower frequency infrared radiation back into the atmosphere.<sup>1</sup>

Most solar radiation passes through gases in the atmosphere classified as GHGs; however, infrared radiation is selectively absorbed by GHGs. GHGs in the atmosphere play a critical role in maintaining the balance between the Earth's absorbed and radiated energy, the Earth's radiation budget,<sup>2</sup> by trapping some of the infrared radiation emitted from the Earth's surface that otherwise would have escaped to space (Figure 3.7-1). Radiative forcing is the difference between the incoming energy and outgoing energy.<sup>3</sup> Specifically, GHGs affect the radiative forcing of the atmosphere,<sup>4</sup> which in turn affects the Earth's average surface temperature. This phenomenon, the *greenhouse effect*, keeps the Earth's atmosphere near the surface warmer than it would be otherwise and allows successful habitation by humans and other forms of life.

Combustion of fossil fuels and deforestation release carbon into the atmosphere that historically has been stored underground in sediments or in surface vegetation, thus exchanging carbon from the geosphere and biosphere to the atmosphere in the carbon cycle. With the accelerated increase in fossil fuel combustion and deforestation since the Industrial Revolution of the 19<sup>th</sup> century, concentrations of GHGs in the atmosphere have increased exponentially. Such emissions of GHGs in excess of natural ambient concentrations contribute to the enhancement of the natural greenhouse effect. This enhanced greenhouse effect has contributed to *global warming*, an increased rate of warming of the Earth's average surface temperature.<sup>5</sup> Specifically, increases in GHGs lead to increased absorption of infrared radiation by the Earth's atmosphere and warm the lower atmosphere further, thereby increasing temperatures and evaporation rates near the surface.

<sup>1</sup> Frequencies at which bodies emit radiation are proportional to temperature. The Earth has a much lower temperature than the sun and emits radiation at a lower frequency (longer wavelength) than the high-frequency (short-wavelength) solar radiation emitted by the sun.

<sup>2</sup> This includes all gains of incoming energy and all losses of outgoing energy; the planet is always striving to be in equilibrium.

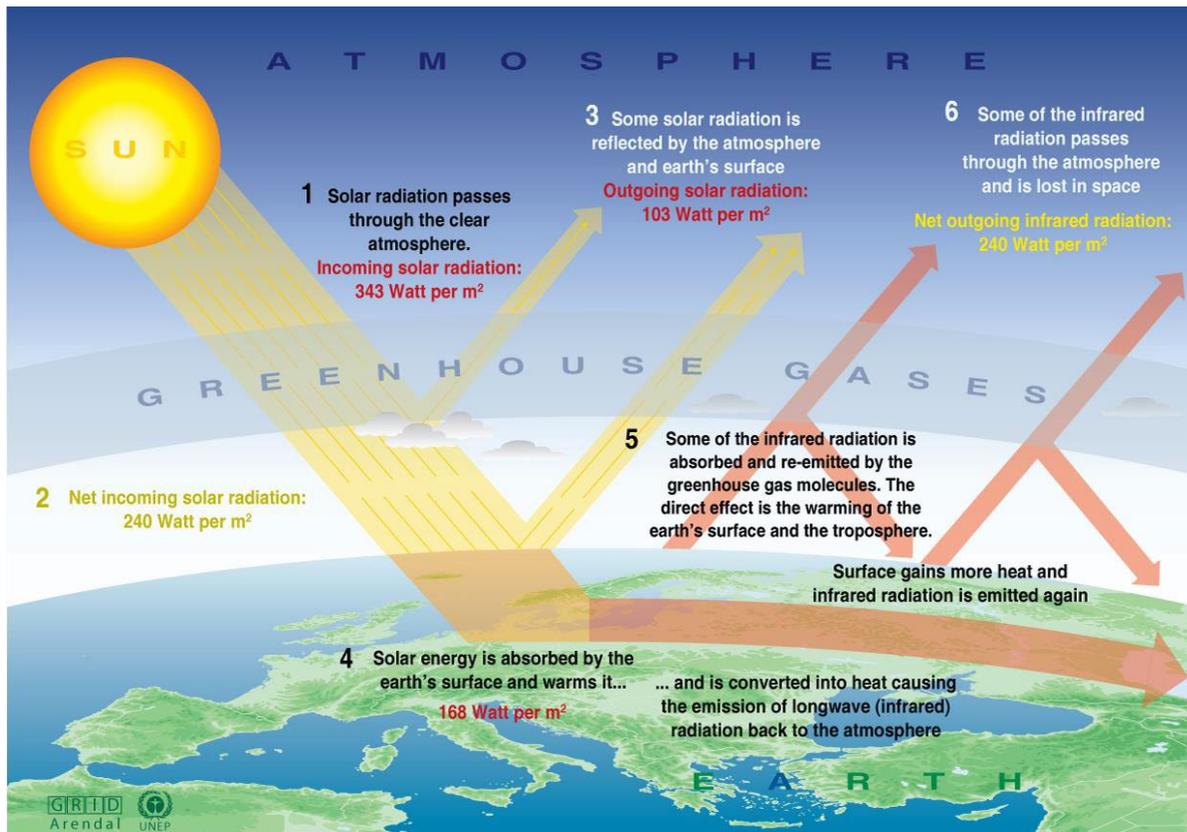
<sup>3</sup> Positive forcing tends to warm the surface while negative forcing tends to cool it.

<sup>4</sup> This is the change in net irradiance at the tropopause after allowing stratospheric temperatures to readjust to radiative equilibrium, but with surface and tropospheric temperatures and state held fixed at the unperturbed values.

<sup>5</sup> This condition results when the Earth has to work harder to maintain its radiation budget, because when more GHGs are present in the atmosphere, the Earth must force emissions of additional infrared radiation out into the atmosphere.

Variations in natural phenomena such as volcanoes and solar activity produced most of the global temperature increase that occurred during preindustrial times; more recently, however, increasing atmospheric GHG concentrations resulting from human activity have been responsible for most of the observed global temperature increase.<sup>6</sup>

**Figure 3.7-1: The Greenhouse Effect**



Source: UNEP/GRID-Arendal, 2005

Global warming affects global atmospheric circulation and temperatures; oceanic circulation and temperatures; wind and weather patterns; average sea level; ocean acidification; chemical reaction rates; precipitation rates, timing, and form; snowmelt timing and runoff flow; water supply; wildfire risks; and other phenomena, in a manner commonly referred to as *climate change*. Climate change is a change in the average weather of the Earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

<sup>6</sup> These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

## Temperature Predictions by the Intergovernmental Panel on Climate Change

The United Nations Intergovernmental Panel on Climate Change (IPCC) was 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 constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios. The report also concluded that “[w]arming of the climate system is unequivocal,” and that “[m]ost of the observed increase in global average temperatures since the mid-20<sup>th</sup> century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.” Warming of the climate system is now considered to be unequivocal, with the global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. The IPCC predicts increases in global average temperature of between 2° and 11°F over the next 100 years, depending on the scenario.

## Greenhouse Gases and Global Emission Sources

Gases that trap heat in the atmosphere are referred to as GHGs. The effect is analogous to the way a greenhouse retains heat. Prominent GHGs that naturally occur in the Earth’s atmosphere are water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), oxides of nitrogen (NO<sub>x</sub>), and ozone. Anthropogenic (human-caused) GHG emissions include releases of these GHGs plus release of human-made gases with high global warming potential (GWP) (ozone-depleting substances such as chlorofluorocarbons [CFCs] and aerosols, hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride (SF<sub>6</sub>)). The GHGs listed by the IPCC (CO<sub>2</sub>, methane, nitrous oxide, HFCs, PFCs, and sulfur hexafluoride) are discussed below, in order of abundance in the atmosphere. Water vapor, despite being the most abundant GHG, is not discussed below because natural concentrations and fluctuations far outweigh anthropogenic influences, making it impossible to predict. Ozone is not included because it does not directly affect radiative forcing. Ozone-depleting substances, which include chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform, and hydrochlorofluorocarbons, are not included because they have been primarily replaced by HFCs and PFCs.

The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a GHG compared with the reference gas, CO<sub>2</sub>.

Individual GHG compounds have varying potential for contributing to global warming. For example, methane is 25 times as potent as CO<sub>2</sub>, while sulfur hexafluoride is 22,200 times more potent than CO<sub>2</sub> on a molecule-per-molecule basis. To simplify reporting and analysis, methods have been set forth to describe emissions of GHGs in terms of a single gas. The most commonly accepted method for comparing GHG emissions is the GWP methodology defined in the IPCC reference documents. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO<sub>2</sub>e), which compares the gas in question to that of the same mass of CO<sub>2</sub> (by definition, CO<sub>2</sub> has a GWP of 1). The global warming potential of a GHG is a measure of

how much a given mass of a GHG is estimated to contribute to global warming. Thus, to describe how much global warming a given type and amount of GHG may cause, the CO<sub>2</sub>e is used. A CO<sub>2</sub>e is the mass emissions of an individual GHG multiplied by its global warming potential. As such, a high GWP represents high absorption of infrared radiation and a long atmospheric lifetime compared to CO<sub>2</sub>. One must also select a time horizon to convert GHG emissions to equivalent CO<sub>2</sub> emissions to account for chemical reactivity and lifetime differences among various GHG species. The standard time horizon for climate change analysis is 100 years. Generally, GHG emissions are quantified in terms of metric tons (MT) of CO<sub>2</sub>e (MT CO<sub>2</sub>e) emitted per year.

According to the IPCC, the atmospheric residence time of a gas is equal to the total atmospheric abundance of the gas divided by its rate of removal. The atmospheric residence time of a gas is, in effect, a half-life measurement of the length of time a gas is expected to persist in the atmosphere when accounting for removal mechanisms such as chemical transformation and deposition.

Table 3.7-1 lists the GWP of each GHG and its lifetime. Units commonly used to describe the concentration of GHGs in the atmosphere are parts per million (ppm), parts per billion (ppb), and parts per trillion (ppt), referring to the number of molecules of the GHG in a sampling of 1 million, 1 billion, or 1 trillion molecules of air. Collectively, HFCs, PFCs, and sulfur hexafluoride are referred to as high-GWP gases. CO<sub>2</sub> is by far the largest component of worldwide CO<sub>2</sub>e emissions, followed by methane, nitrous oxide, and high-GWP gases, in order of decreasing contribution to CO<sub>2</sub>e.

The primary human processes that release GHGs include the burning of fossil fuels for transportation, heating, and electricity generation; agricultural practices that release methane, such as livestock grazing and crop residue decomposition; and industrial processes that release smaller amounts of high-GWP gases. Deforestation and land cover conversion have also been identified as contributing to global warming by reducing the Earth’s capacity to remove CO<sub>2</sub> from the air and altering the Earth’s albedo or surface reflectance, thus allowing more solar radiation to be absorbed. Specifically, CO<sub>2</sub> emissions associated with fossil fuel combustion are the primary contributors to human-induced climate change. CO<sub>2</sub>, methane, and nitrous oxide emissions associated with human activities are the next largest contributors to climate change.

GHGs of California concern are defined by California Assembly Bill (AB) 32 (see the Regulatory Environment subsection below for a description) and include CO<sub>2</sub>, CH<sub>4</sub>, NO<sub>x</sub>, HFCs, PFCs, and SF<sub>6</sub>. A seventh GHG, nitrogen trifluoride (NF<sub>3</sub>), was also added under the California Health and Safety Code section 38505(g)(7) as a GHG of concern. These GHGs are described in terms of their physical description and properties, global warming potential, atmospheric residence lifetime, sources, and atmospheric concentration in 2005 in Table 3.7-1. References for documents used to obtain this information are listed in Appendix C.

**Table 3.7-1: Description of Greenhouse Gases of California Concern**

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Carbon dioxide (CO <sub>2</sub> )	Odorless, colorless, natural gas.	1	50-200	burning coal, oil, natural gas, and wood; decomposition of dead organic matter; respiration of

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
				bacteria, plants, animals, and fungus; oceanic evaporation; volcanic outgassing; cement production; land use changes
Methane (CH <sub>4</sub> )	Flammable gas and is the main component of natural gas.	25	12	geological deposits (natural gas fields) extraction; landfills; fermentation of manure; and decay of organic matter
Nitrous oxide (N <sub>2</sub> O)	Nitrous oxide (laughing gas) is a colorless GHG.	298	114	microbial processes in soil and water; fuel combustion; industrial processes
Chloro-fluoro-carbons (CFCs)	Nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (level of air at the Earth's surface); formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms.	3,800-8,100	45-640	refrigerants aerosol propellants; cleaning solvents.
Hydro-fluoro-carbons (HFCs)	Synthetic human-made chemicals used as a substitute for CFCs and contain carbon, chlorine, and at least one hydrogen atom.	140 to 11,700	1-50,000	automobile air conditioners; refrigerants
Per-fluoro-carbons (PFCs)	Stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface.	6,500 to 9,200	10,000-50,000	primary aluminum production; semiconductor manufacturing
Sulfur hexafluoride (SF <sub>6</sub> )	Human-made, inorganic, odorless, colorless, and nontoxic, nonflammable gas.	22,800	3,200	electrical power transmission equipment insulation; magnesium industry, semiconductor manufacturing; a tracer gas
Nitrogen trifluoride (NF <sub>3</sub> )	Inorganic, is used as a replacement for PFCs, and is a powerful oxidizing agent.	17,200	740	electronics manufacture for semiconductors and liquid crystal displays.

Greenhouse Gas	Physical Description and Properties	Global Warming Potential (100 years)	Atmospheric Residence Lifetime (years)	Sources
Sources: IPCC 2007a and IPCC 2007b.				

The State has begun the process of addressing pollutants referred to as short-lived climate pollutants. Senate Bill (SB) 605, approved by the Governor on September 14, 2014, required the California Air Resources Board (ARB) to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016. The ARB released the Proposed Short-Lived Climate Pollutant Reduction Strategy in April 2016. The ARB has completed an emission inventory of these pollutants, identified research needs, identified existing and potential new control measures that offer co-benefits, and coordinated with other State agencies and districts to develop measures.

The short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. Fluorinated gases and methane are described in Table 3.7-1 and are already included in the California GHG inventory. Black carbon has not been included in past GHG inventories; however, the ARB will include it in its comprehensive strategy.

Black carbon is a component of fine particulate matter. Black carbon is formed by incomplete combustion of fossil fuels, biofuels, and biomass. Sources of black carbon within a jurisdiction may include exhaust from diesel trucks, vehicles, and equipment, as well as smoke from biogenic combustion. Biogenic combustion sources of black carbon include the burning of biofuels used for transportation, the burning of biomass for electricity generation and heating, prescribed burning of agricultural residue, and natural and unnatural wildfires. Black carbon is not a gas but an aerosol—particles or liquid droplets suspended in air. Black carbon only remains in the atmosphere for days to weeks, whereas other GHGs can remain in the atmosphere for years. Black carbon can be deposited on snow, where it absorbs sunlight, reduces sunlight reflectivity, and hastens snowmelt. Direct effects include absorbing incoming and outgoing radiation; indirectly, black carbon can also affect cloud reflectivity, precipitation, and surface dimming (cooling).

Global warming potentials for black carbon were not defined by the IPCC in its Fourth Assessment Report. The ARB has identified a global warming potential of 3,200 using a 20-year time horizon and 900 using a 100-year time horizon from the IPCC Fifth Assessment. Sources of black carbon are already regulated by ARB, and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion sources (ARB 2015c). Additional controls on the sources of black carbon specifically for their GHG impacts beyond those required for toxic and fine particulates are not likely to be needed.

Ozone is another short-lived climate pollutant that will be part of the strategy. Ozone affects evaporation rates, cloud formation, and precipitation levels. Ozone is not directly emitted, so its precursor emissions, volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) on a regional scale and CH<sub>4</sub> on a hemispheric scale will be subject of the strategy.

Water vapor is also considered a GHG. Water vapor is an important component of our climate system and is not regulated. Increasing water vapor leads to warmer temperatures, which causes more water vapor to be absorbed into the air. Warming and water absorption increase in a spiraling cycle. Water vapor feedback can also amplify the warming effect of other GHGs, such that the warming brought about by increased carbon dioxide allows more water vapor to enter the atmosphere.

### **Global Climate Change Issue**

Climate change is a global problem because GHGs are global pollutants, unlike criteria air pollutants and hazardous air pollutants (also called toxic air contaminants), which are pollutants of regional and local concern. Pollutants with localized air quality effects have relatively short atmospheric lifetimes, approximately 1 day; by contrast, GHGs have long atmospheric lifetimes, several years to several thousand years. GHGs persist in the atmosphere for a long enough time to be dispersed around the globe.

Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be pinpointed, more CO<sub>2</sub> is currently emitted into the atmosphere than is sequestered. CO<sub>2</sub> sinks, or reservoirs, include vegetation and the ocean, which absorb CO<sub>2</sub> through photosynthesis and dissolution, respectively. These are two of the most common processes of CO<sub>2</sub> sequestration. Of the total annual human-caused CO<sub>2</sub> emissions, approximately 54 percent is sequestered through ocean uptake, Northern Hemisphere forest regrowth, and other terrestrial sinks within a year, whereas the remaining 46 percent of human-caused CO<sub>2</sub> emissions is stored in the atmosphere (Seinfeld 2006).

Similarly, effects of GHGs are borne globally, as opposed to the localized air quality effects of criteria air pollutants and hazardous air pollutants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known and cannot be quantified, and no single project would be expected to measurably contribute to a noticeable incremental change in the global average temperature, or to global or local climates or microclimate.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. A cumulative discussion and analysis of project impacts on global climate change is presented in this EIR because, although it is unlikely that a single project will contribute significantly to climate change, cumulative emissions from many projects affect global GHG concentrations and the climate system.

Global climate change has the potential to result in sea level rise (resulting in flooding of low-lying areas), to affect rainfall and snowfall (leading to changes in water supply), to affect temperatures and habitats (affecting biological resources and public health), and to result in many other adverse environmental consequences.

Although the international, national, state, and regional communities are beginning to address GHGs and the potential effects of climate change, worldwide GHG emissions will likely continue to rise over the next decades.

### Climate and Topography

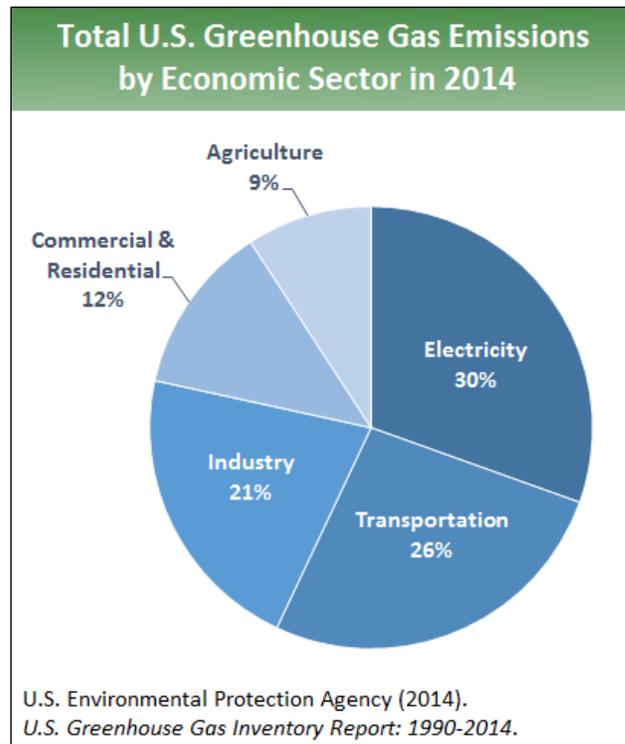
Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place. For a detailed discussion of existing regional and project site climate and topography, see Section 3.3, Air Quality.

### Existing GHG Emissions

#### U.S. GHG Inventory

Total U.S. GHG emissions were approximately 1 percent higher in 2014 than in 2013 (United States Environmental Protection Agency [EPA] 2016). Figure 3.7-2 presents 2014 U.S. GHG emissions by economic sector. Total U.S. GHG emissions increased by 7.4 percent from 1990 to 2014 (from 6,233.2 million metric tons [MMT] CO<sub>2</sub>e in 1990 to 6,870.5 MMT CO<sub>2</sub>e in 2014). Since 1990, U.S. emissions have increased at an average annual rate of 0.3 percent. In 2014, cool winter conditions led to an increase in CO<sub>2</sub>e emissions associated with fuels used for heating in the residential and commercial sectors. Transportation emissions also increased because of a small increase in vehicle miles traveled. There was also an increase in industrial production across multiple sectors, resulting in slight increases in industrial-sector emissions.

Figure 3.7-2: 2014 U.S. Greenhouse Gas Emissions by Gas



Source: EPA 2016

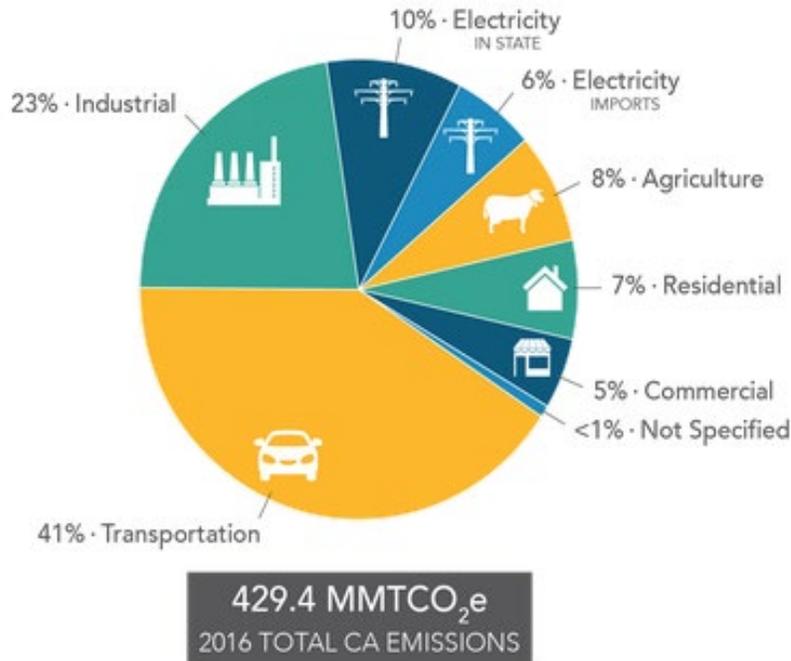
Note: Emissions shown do not include carbon sinks such as change in land uses and forestry.

#### California GHG Inventory

As the second largest emitter of GHG emissions in the U.S. and the 12<sup>th</sup> to 16<sup>th</sup> largest GHG emissions emitter in the world, California contributes a large quantity (429.24 MMT CO<sub>2</sub>e in 2016) of GHG

emissions to the atmosphere (California Climate Change Center [CCCC] 2006). Emissions of CO<sub>2</sub> are byproducts of fossil-fuel combustion and are attributable in large part to human activities associated with transportation, industry/ manufacturing, electricity and natural gas consumption, and agriculture. In California, the transportation sector is the largest emitter at 41 percent of GHG emissions, followed by industry/ manufacturing at 23 percent of GHG emissions; refer to Figure 3.7-3.

**Figure 3.7-3: 2016 California Greenhouse Gas Emissions by Sector**



Source: ARB 2018.

**Stanislaus County**

A community-wide baseline (2005) GHG emissions inventory was conducted for Stanislaus County as part. Table 3.7-2 provides the estimated 2005 baseline by sector for Stanislaus County. The project is located outside the Patterson city limits in unincorporated Stanislaus County and will require annexation into the City of Patterson. Table 3.7-2 includes emissions from the unincorporated areas in the county.

**Table 3.7-2: 2005 Unincorporated County Baseline by Sector (excluding Stationary Source Emissions)**

Sector	MT CO <sub>2</sub> e/year	Percentage of Total
Agriculture—Livestock Emissions	1,113,647	18%
Agriculture—Other Emissions	340,767	6%
Building Energy—Natural Gas	973,386	16%

Sector	MT CO <sub>2</sub> e/year	Percentage of Total
Off-Road Transportation	134,546	2%
On-Road Transportation	1,636,983	27%
High GWP/Refrigerants	364,473	6%
Building Energy—Electricity	1,380,477	23%
Waste Generation	49,667	0.8%
Wastewater Treatment	17,899	0.3%
Water	32,267	0.5%
Total	6,044,113	100%

Source: StanCog 2013.

### **City of Patterson**

#### **Plan Area**

There are a number of rural residential homes located within the Ranchette Triangle portion of the Zacharias Master Plan. Because these are low intensity sources of greenhouse gas emissions, the baseline emissions for Master Plan analysis were assumed to be zero as a conservative assumption.

#### **Climate Change Trends and Effects**

CO<sub>2</sub> accounts for more than 75 percent of all anthropogenic GHG emissions, the atmospheric residence time of CO<sub>2</sub> is decades to centuries, and global atmospheric concentrations of CO<sub>2</sub> continue to increase at a faster rate than ever previously recorded. Thus, the warming impacts of CO<sub>2</sub> will persist for hundreds of years after mitigation is implemented to reduce GHG concentrations.

#### **California**

Substantially higher temperatures, more extreme wildfires, and rising sea levels are just some of the direct effects experienced in California. As reported by the California Natural Resources Agency (CNRA) in 2009, despite annual variations in weather patterns, California has seen a trend of increased average temperatures, more extreme hot days, fewer cold nights, longer growing seasons, less winter snow, and earlier snowmelt and rainwater runoff. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and a larger proportion of total precipitation is falling as rain instead of snow. Sea level rose by as much as seven inches along the California coast over the last century, leading to increased erosion and adding pressure to the State’s infrastructure, water supplies, and natural resources.

These observed trends in California’s climate are projected to continue in the future. Research indicates that California will experience overall hotter and drier conditions with a continued reduction in winter snow (with concurrent increases in winter rains), as well as increased average temperatures and accelerating sea level rise. The frequency, intensity, and duration of extreme weather events such as heat waves, wildfires, droughts, and floods will also change. In addition,

increased air pollution and spread of insects potentially carrying infectious diseases will also occur as the climate-associated temperature and associated species clines shift in latitude.

The following is a summary of climate change factors and predicted trends specific to California.

In California, climate change may result in consequences such as the following.

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of Southern California are estimated to increase by approximately 30 percent toward the end of the 21<sup>st</sup> Century because more winter rain will stimulate the growth of more plant “fuel” available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more Northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today’s conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California’s coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California’s forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

#### *Precipitation/Rainfall/Flooding Events*

Studies of the effect of climate change on the long-term average precipitation for California show some disagreement (CCCC 2009). Considerable variability exists across individual models, and examining the average changes can mask more extreme scenarios that project much wetter or drier conditions. California is expected to maintain a Mediterranean climate through the next century,

with dry summers and wet winters that vary between seasons, years, and decades. Wetter winters and drier springs are also expected, but overall annual precipitation is not projected to change substantially. By mid-century, more precipitation is projected to occur in winter in the form of less frequent but larger events. The majority of global climate models predict drying trends across the State by 2100 (CNRA 2009). California is expected to see increases in the magnitude of extreme events, including increased precipitation delivered from atmospheric river events, which would bring high levels of rainfall during short time periods and increase the chance of flash floods.

#### *Reduced Sierra Nevada Snowpack and Water Supply Shortages*

If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate surface water supplies.

#### *Vectors/Disease Events*

Climate change will likely increase the vectors of insects and, in turn, may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects, such as malaria, dengue fever, yellow fever, and encephalitis.

#### *Air Quality/Pollution Events*

Respiratory disorders will be exacerbated by warming-induced increases in the frequency of smog (ground-level ozone) events and particulate air pollution. Although there could be health effects resulting from changes in the climate and the consequences that can occur, inhalation of GHGs at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, SF<sub>6</sub>, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen.

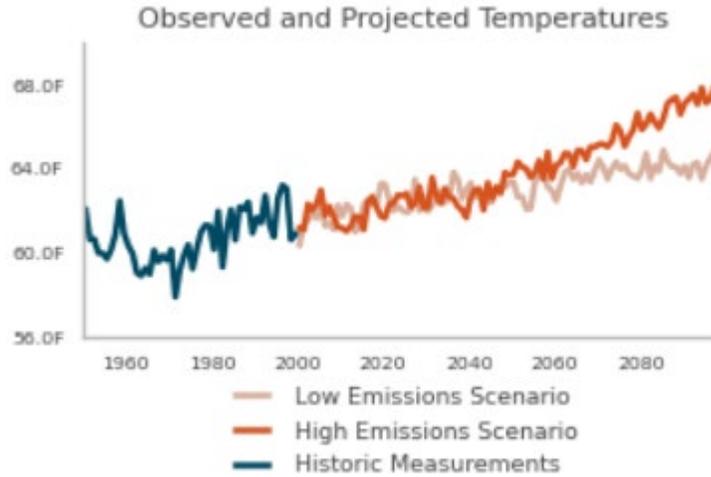
### **City of Patterson**

#### *Temperature and Heat*

Figure 3.7-4 displays a chart of measured historical (i.e., observed) and projected annual average temperatures in the City of Patterson area. As shown in the figure, temperatures are expected to rise as part of both the low and high GHG emissions scenarios.<sup>7</sup> The results indicate that temperatures are predicted to increase by 3.7°F under the low emission scenario and 6.2°F under the high emissions scenario.

<sup>7</sup> The low and high GHG emissions scenarios are based on IPCC's Special Report on Emissions Scenarios B1 and A1, respectively. The higher global GHG emissions scenario (A1) assumes a global trend of rapid economic growth. The lower GHG emissions scenario (B1) assumes the same global population as in the A1 storyline but with rapid changes in economic structures toward a service and information economy, with reductions in material intensity, and the introduction of clean and resource-efficient technologies. Overall, the B1 scenario places more focus on global environmental sustainability rather than rapid economic growth.

**Figure 3.7-4: Observed and Projected Temperatures in Patterson**



Source: CalAdapt 2019

### **Project Site**

Both Master Plan areas are surrounded by agricultural, residential, or business park uses, or infrastructure (i.e., the Delta-Mendota Canal). Neither Master Plan adjoins areas susceptible to wildfire. Furthermore, the lands west of I-5 that are susceptible to wildfire are at least 0.5-mile to the west, with the highway, the California Aqueduct, and the Delta-Mendota Canal in between. Thus, the likelihood of a wildfire jumping over all three linear features is very low.

### **Electricity Generation, Distribution, and Use**

#### **State of California**

The State of California generates approximately 206,336 gigawatt-hours (GWh) of electricity. Approximately 43.4 percent of the energy generation is sourced from natural gas, 29.7 percent from renewable sources (i.e., solar, wind, and geothermal), 17.9 percent from large hydroelectric sources, and the remaining 9 percent is sourced from coal, nuclear, oil, and other non-renewable sources.

In 2016, California ranked third in the nation in conventional hydroelectric generation, second in net electricity generation from all other renewable energy resources combined, and first as a producer of electricity from solar, geothermal, and biomass resources. California leads the nation in solar thermal electricity capacity and generation. In 2016, California generated 71 percent of the nation's solar thermal-sourced utility-scale electricity.

Electricity and natural gas are distributed through the various electric load-serving entities (LSEs) in California. These entities include investor-owned utilities (IOUs), publicly owned LSEs, rural electric cooperatives, community choice aggregators, and electric service providers.

#### **Stanislaus County**

Modesto Irrigation District, Turlock Irrigation District and Pacific Gas and Electric Company (PG&E) are the utility providers for the county.

### ***Project Site***

Turlock Irrigation District would provide electrical service to the Zacharias Master Plan and Baldwin Master Plan. All new electrical lines and service laterals would be located underground.

## **Natural Gas Generation, Distribution, and Use**

### ***State of California***

Natural gas is used for everything from generating electricity to cooking and space heating to an alternative transportation fuel. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet (BCF) per year (BCF/year), up from 2,196 BCF/year in 2010. Demand in all sectors except electric power generation remained relatively flat for the last decade due in large part to energy efficiency measures, but demand for power generation rose about 30 percent between 2011 and 2012.

Natural gas-fired generation has become the dominant source of electricity in California, as it fuels about 43 percent of electricity consumption followed by hydroelectric power. Because natural gas is a dispatchable resource that provides load when the availability of hydroelectric power generation and/or other sources decrease, use varies greatly from year to year. The availability of hydroelectric resources, the emergence of renewable resources for electricity generation, and overall consumer demand are the variables that shape natural gas use in electric generation. Due to above average precipitation in 2011, natural gas used for electricity generation was 617 BCF, compared to lower precipitation years in 2010 and 2012 when gas use for electric generation was 736 BCF and 855 BCF, respectively.

### ***Master Plan***

PG&E would provide natural gas service to the Zacharias Master Plan and Baldwin Master Plan. All new gas lines and service laterals would be located underground.

## **Fuel Use**

### ***State of California***

The main category of fuel use in California is transportation fuel, specifically gasoline and diesel. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline sold in California being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2015, 15.1 billion gallons of gasoline were sold, which represents the largest transportation fuel used in California (California Energy Commission [CEC] 2016). Diesel is the second largest transportation fuel used in California. According to the state Board of Equalization, in 2015 4.2 billion gallons of diesel, including off-road diesel, was sold. Nearly all heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction and heavy-duty military vehicles and equipment have diesel engines.

### ***Project Site***

For the purpose of this analysis, no existing trips are assumed to be generated at the project site.

### 3.7.3 - Regulatory Framework

#### International

##### *United Nations Climate Change Framework Convention*

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Climate Change Framework Convention. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

##### ***Western Climate Initiative (Western North America Cap-and-Trade Program)***

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded, or provides flexibility on how the emitter can comply. Each emitter caps carbon dioxide emissions from power plants, auctions carbon dioxide emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce North America GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the cap-and-trade program (Center for Climate and Energy Solutions [C2ES] 2015a)

##### *Kyoto Protocol*

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at average of five percent against 1990 levels over the 5-year period from 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities.”

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2°C above pre-industrial levels, subject to a review in 2015. The Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 heads of state and government, and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the United Nations.

At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

### **Paris Climate Change Agreement**

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a 4-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts, and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21<sup>st</sup> session of the UNFCCC Conference of the Parties, or “COP 21.” Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2°C, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make “nationally determined contributions” (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and “progress made in implementing and achieving” their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every 5 years, with the clear expectation that they will “represent a progression” beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing \$100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address “loss and damage” resulting from climate change, which explicitly will not “involve or provide a basis for any liability or compensation;”
- Require parties engaging in international emissions trading to avoid “double counting;” and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country’s NDC (C2ES 2015b).

On June 1, 2017, President Donald J. Trump announced the decision for the United States to withdraw from the Paris Climate Accord. California remains committed to combating climate change through programs aimed to reduce GHGs.

## Federal

### ***Massachusetts et al. v. EPA (U.S. Supreme Court GHG Endangerment Ruling)***

*Massachusetts et al. v. EPA* (Supreme Court Case 05-1120) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four GHGs, including CO<sub>2</sub>, under Section 202(a)(1) of the Clean Air Act (CAA). A decision was made on April 2, 2007, in which the Supreme Court found that GHGs are air pollutants covered by the CAA. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>—in the atmosphere threaten the public health and welfare of current and future generations; and
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed under “Clean Vehicles” below. After a lengthy legal challenge, the U.S. Supreme Court declined to review an Appeals Court ruling upholding that upheld the EPA Administrator findings.

### ***U.S. Consolidated Appropriations Act (Mandatory GHG Reporting)***

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the EPA. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to the EPA in 2011.

### ***U.S. Clean Air Act Permitting Programs (New GHG Source Review)***

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule “tailors” the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, the EPA states:

This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the

100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

The EPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

### ***Energy Independence and Security Act***

The Energy Policy Act of 2005 created the Renewable Fuel Standard program. The Energy Independence and Security Act of 2007 expanded this program by:

- Expanding the Renewable Fuel Standard program to include diesel in addition to gasoline;
- Increasing the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- Establishing new categories of renewable fuel, and setting separate volume requirements for each one; and
- Requiring the EPA to apply life-cycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

This expanded Renewable Fuel Standard program lays the foundation for achieving substantial reductions of GHG emissions from the use of renewable fuels, reducing the use of imported petroleum, and encouraging the development and expansion of the nation's renewable-fuels sector.

Signed on December 19, 2007, by President George W. Bush, the Energy Independence, and Security Act of 2007 (EISA) aims to:

- move the United States toward greater energy independence and security;
- increase the production of clean renewable fuels;
- protect consumers;
- increase the efficiency of products, buildings, and vehicles;
- promote research on and deploy greenhouse gas capture and storage options;
- improve the energy performance of the Federal Government; and
- increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy.

EISA reinforces the energy reduction goals for federal agencies put forth in Executive Order 13423, as well as introduces more aggressive requirements. The three key provisions enacted are the Corporate Average Fuel Economy Standards, the Renewable Fuel Standard, and the appliance/lighting efficiency standards.

EPA is committed to developing, implementing, and revising both regulations and voluntary programs under the following subtitles in EISA, among others:

- Increased Corporate Average Fuel Economy Standards
- Federal Vehicle Fleets
- Renewable Fuel Standard
- Biofuels Infrastructure
- Carbon Capture and Sequestration (EPA)

***EPA and National Highway Traffic Safety Administration Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards Final Rule***

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, the President put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO<sub>2</sub> per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO<sub>2</sub> level solely through fuel economy improvements. Together, these standards would cut CO<sub>2</sub> emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

EPA and the NHTSA issued final rules on a second-phase joint rulemaking, establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012 (EPA 2012). The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and medium duty passenger vehicles. The final standards are projected to result in an average industry fleet wide level of 163 grams/mile of CO<sub>2</sub> in model year 2025, which is equivalent to 54.5 miles per gallon (mpg) if achieved exclusively through fuel economy improvements.

EPA and NHTSA issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks and buses on September 15, 2011, which became effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that began in the 2014 model year and achieve up to a 20-percent reduction in CO<sub>2</sub> emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in

the 2014 model year and achieve up to a 10-percent reduction for gasoline vehicles, and a 15-percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10-percent reduction in fuel consumption and CO<sub>2</sub> emissions from the 2014 to 2018 model years.

The State of California has received a waiver from EPA to have separate, stricter corporate average fuel economy standards.

## State

### ***California AB 1493: Pavley Regulations and Fuel Efficiency Standards***

California AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011.

The standards are to be phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in an approximately 22-percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley Bill was incorporated into Amendments to the Low-Emission Vehicle (LEV) Program referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The new rules will reduce pollutants from gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles and hydrogen fuel cell cars. The regulations will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

### ***California SB 1078: Renewable Electricity Standards***

On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor

Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the State’s load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

### ***SB 100—California Renewables Portfolio Standard Program***

The Governor signed SB 100 on September 10, 2018. The legislation revised the Renewable Portfolio Standard goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The bill would require that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030.

### ***California Executive Order S-3-05 (GHG Emissions Reduction Targets)***

Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

### ***California AB 32: Global Warming Solutions Act and Scoping Plan***

The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. “Greenhouse gases” as defined under AB 32 include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

ARB approved the 1990 GHG emissions level of 427 million metric tons of carbon dioxide equivalents (MMTCO<sub>2</sub>e) on December 6, 2007 (ARB 2007). The inventory was updated in 2014 and included a

revised 2020 target of 431 MMTCO<sub>2</sub>e. Therefore, to meet the State’s target, emissions generated in California in 2020 are required to be equal to or less than 431 MMT CO<sub>2</sub>e. The State inventory was below the target in the 2016 and 2017 inventories and is on track to remain below the target by the end of 2020. This means that State’s strategies included in the ARB Climate Change Scoping Plan (Scoping Plan) have been successful and that regulations adopted to implement the Scoping Plan have been sufficient to accommodate growth in the State. AB 32 does not give ARB a legislative mandate to set a target beyond the 2020 target or to adopt additional regulations to achieve a post-2020 target. SB 32, described later in this section was adopted to provide a 2030 target.

The 2008 Scoping Plan included the following strategies:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long-term commitment to AB 32 implementation.

In addition, the 2008 Scoping Plan differentiates between “capped” and “uncapped” strategies. Capped strategies are subject to the cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and-trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions (ARB 2008). The Cap and Trade Program has been implemented and was extended by the Legislature through 2030.

The Cap-and-Trade Program is a key element of the Scoping Plan. It sets a Statewide limit on sources responsible for 85 percent of California’s GHG emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant

milestones include linkage to Quebec’s cap-and-trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015.

**California SB 375: Sustainable Communities and Climate Protection Act**

SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40 percent of the total GHG emissions in California. SB 375 states, “Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.” SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets;
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies); and
3. Incorporates the mitigation measures required by an applicable prior environmental document.

**California SB 1368: Emission Performance Standards**

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California’s utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs CO<sub>2</sub> per megawatt-hour (MWh).

### **California Executive Order S-01-07: Low Carbon Fuel Standard**

The Governor signed Executive Order S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The Low Carbon Fuel Standard was subject to legal challenge in 2011. Ultimately, on August 8, 2013, the Fifth District Court of Appeal (California) ruled that ARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for Low Carbon Fuel Standards. In a partially published opinion, the Court of Appeal directed that Resolution 09-31 and two executive orders of ARB approving LCFS regulations promulgated to reduce GHG emissions be set aside. However, the court tailored its remedy to protect the public interest by allowing the LCFS regulations to remain operative while ARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, ARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The second public hearing for the new LCFS regulation was held on September 24, 2015 and September 25, 2015, where the LCFS Regulation was adopted. The Final Rulemaking Package adopting the regulation was filed with the Office of Administrative Law (OAL) on October 2, 2015. The OAL approved the regulation on November 16, 2015.

### **California Executive Order S-13-08**

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy was adopted, which is the ". . . first Statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

### **California SBX 7-7: Water Conservation Act**

This 2009 legislation directs urban retail water suppliers to set individual 2020 per capita water use targets and begin implementing conservation measures to achieve those goals. Meeting this

statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet in urban water use in 2020.

### ***California SB 350: Clean Energy and Pollution Reduction Act***

In 2015, the State legislature approved and the Governor signed SB 350 which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill due to opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission, the California Energy Commission, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

### ***California Executive Order B-30-15***

On April 29, 2015, an executive order was issued by the Governor to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The executive order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs the ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of MMCO<sub>2e</sub>. The executive order also requires the State's climate adaptation plan to be updated every 3 years and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this executive order is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

### ***California Senate Bill 32***

The Governor signed SB 32 in September of 2016, giving the ARB the statutory responsibility to include the 2030 target previously contained in Executive Order B-30-15 in the 2017 Scoping Plan Update. SB 32 states that "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030."

The 2017 Climate Change Scoping Plan Update addressing the SB 32 targets was adopted on December 14, 2017. The major elements of the framework proposed to achieve the 2030 target are as follows:

1. SB 350
  - Achieve 50 percent RPS by 2030.
  - Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard
  - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
  - Maintaining existing GHG standards for light- and heavy-duty vehicles.
  - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
  - Increase ZEV buses, delivery and other trucks.
4. Sustainable Freight Action Plan
  - Improve freight system efficiency.
  - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
  - Deploy over 100,000 zero-emission trucks and equipment by 2030.
5. Short-Lived Climate Pollutant (SLCP) Reduction Strategy
  - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
  - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
6. SB 375 Sustainable Communities Strategies
  - Increased stringency of 2035 targets.
7. Post-2020 Cap-and-Trade Program
  - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
  - ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
8. 20 percent reduction in GHG emissions from the refinery sector.
9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

### ***California Code of Regulations Title 20: Appliance Efficiency Regulations***

California Code of Regulations, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally

regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

### ***California Code of Regulations Title 24: Energy Efficiency Standards***

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards went into effect on January 1, 2017.

### ***California Code of Regulations Title 24: California Green Building Standards Code***

California Code of Regulations Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect January 1, 2011. The code is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided, they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy, which is generally enforced by the local building official.

The California Green Building Standards Code (California Code of Regulations Title 24, Part 11 Code) requires:

- **Short-term bicycle parking.** If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- **Long-term bicycle parking.** For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (5.410.1).

- **Construction waste.** A minimum 65-percent diversion of construction and demolition waste from landfills. (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by one of the following methods:
  1. The installation of water-conserving fixtures or
  2. Using non-potable water systems (5.303.4).
- **Water use savings.** 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35, and 40-percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- **Water meters.** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day (5.303.1).
- **Irrigation efficiency.** Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- **Materials pollution control.** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard (5.404).
- **Building commissioning.** Mandatory inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies (5.410.2).

### ***California Model Water Efficient Landscape Ordinance***

The Model Water Efficient Landscape Ordinance (Ordinance) was required by AB 1881 Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20 percent consistent with (SBX-7-7) 2020 mandate are expected for Ordinance. Governor Brown’s Drought Executive Order of April 1, 2015 (EO B-29-15) directed DWR to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015, which became effective on December 15, 2015. New development projects that include landscaped areas of 500 square feet or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems
- Incentives for graywater usage
- Improvements in on-site stormwater capture
- Limiting the portion of landscapes that can be planted with high water use plants
- Reporting requirements for local agencies.

### ***California SB 97 and the CEQA Guidelines Update***

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states “(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of

GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a).”

Section 21097 was also added to the Public Resources Code, which provided an exemption until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA. The CNRA completed the approval process and the Amendments became effective on March 18, 2010.

The 2010 CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of GHG emissions:

- The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project’s incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines amendments do not identify a threshold of significance for GHG emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a “good-faith effort, based on available information, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project.” The amendments encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies’ discretion to make their own determinations based upon substantial evidence. The amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts, respectively. GHG mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion

requirement (Section 15130) simply directs agencies to analyze GHG emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable; however, it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic GHG analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include GHG questions.

CEQA emphasizes that the effects of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis (see CEQA Guidelines Section 15130(f)).

### ***Center for Biological Diversity v. California Department of Fish and Wildlife (California Supreme Court GHG Ruling)***

In a November 30, 2015 ruling, the California Supreme Court in *Center for Biological Diversity (CBD) v. California Department of Fish and Wildlife (CDFW)* on the Newhall Ranch project concluded that whether the project was consistent with meeting Statewide emission reduction goals is a legally permissible criterion of significance, but the significance finding for the project was not supported by a reasoned explanation based on substantial evidence. The Court offered potential solutions on pages 25–27 of the ruling to address this issue summarized below:

Specifically, the Court advised that:

- **Substantiation of Project Reductions from Business as Usual.** A lead agency may use a business as usual (BAU) comparison based on the Scoping Plan's methodology if it also substantiates the reduction a particular project must achieve to comply with statewide goals. The Court suggested a lead agency could examine the "data behind the Scoping Plan's business-as-usual model" to determine the necessary project-level reductions from new land use development at the proposed location (p. 25).
- **Compliance with Regulatory Programs or Performance Based Standards.** A lead agency "might assess consistency with A.B. 32's goal in whole or part by looking to compliance with regulatory programs designed to reduce greenhouse gas emissions from particular activities. (See Final Statement of Reasons, supra, at p. 64 [greenhouse gas emissions 'may be best analyzed and mitigated at a programmatic level.'].)" To the extent a project's design features comply with or exceed the regulations outlined in the Scoping Plan and adopted by the Air Resources Board or other state agencies, a lead agency could appropriately rely on their use as showing compliance with 'performance based standards' adopted to fulfill 'a statewide . . . plan for the reduction or mitigation of greenhouse gas emissions' (CEQA Guidelines § 15064.4(a)(2), (b)(3); see also id., § 15064(h)(3) [determination that impact is not cumulatively

considerable may rest on compliance with previously adopted plans or regulations, including ‘plans or regulations for the reduction of greenhouse gas emissions’]) (p. 26).

- **Compliance with GHG Reduction Plans or Climate Action Plans.** A lead agency may utilize “geographically specific GHG emission reduction plans” such as climate action plans or greenhouse gas emission reduction plans to provide a basis for the tiering or streamlining of project-level CEQA analysis (p. 26).
- **Compliance with Local Air District Thresholds.** A lead agency may rely on “existing numerical thresholds of significance for greenhouse gas emissions” adopted by, for example, local air districts (p. 27).

Therefore, consistent with CEQA Guidelines Appendix G, the three factors identified in CEQA Guidelines Section 15064.4 and the recently issued Newhall Ranch opinion, the GHG impacts would be considered significant if the project would:

- Conflict with a compliant GHG Reduction Plan if adopted by the lead agency;
- Exceed the applicable GHG Reduction Threshold; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

### ***California Building Energy Efficiency Standards***

The Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations Title 24, Part 6) were established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technology and methods. The most recent update of standards became effective in January 1, 2017. California’s building efficiency standards (including standards for energy-efficient appliances). The Energy Commission staff has estimated that the implementation of the 2016 Building Energy Efficiency Standards may reduce statewide annual electricity consumption by approximately 281 gigawatt-hours per year and reduce greenhouse gas emissions by 160 thousand metric tons CO<sub>2</sub>e per year.

### **San Joaquin Air Pollution Control District Regulations**

#### ***Climate Change Action Plan***

On August 21, 2008, the Valley Air District Governing Board approved a proposal called the Climate Change Action Plan. The CCAP began with a public process bringing together stakeholders, land use agencies, environmental groups, and business groups to conduct public workshops to develop comprehensive policies for CEQA guidelines, a carbon exchange bank, and voluntary GHG emissions mitigation agreements for the Governing Board’s consideration. The CCAP contains the following goals and actions:

- Develop GHG significance thresholds to address CEQA projects with GHG emission increases.
- Develop the San Joaquin Valley Carbon Exchange for banking and trading GHG reductions.

- Authorize use of the Valley Air District’s existing inventory reporting system to allow use for GHG reporting required by AB 32 regulations.
- Develop and administer GHG reduction agreements to mitigate proposed emission increases from new projects.
- Support climate protection measures that reduce greenhouse gas emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted areas.

On December 17, 2009, the Valley Air District Governing Board adopted “Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,” and the policy “District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency.” The Valley Air District concluded that the existing science is inadequate to support quantification of the impacts that project-specific GHG emissions have on global climatic change. The Valley Air District found the effects of project-specific emissions to be cumulative, and without mitigation, their incremental contribution to global climatic change could be considered cumulatively considerable. The Valley Air District found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation.

The Valley Air District’s approach is intended to streamline the process of determining if project-specific GHG emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources, and must have a certified final CEQA document.

For non-exempt projects, those projects for which there is no applicable approved plan or program, or those projects not complying with an approved plan or program, the lead agency must evaluate the project against performance-based standards and would require the adoption of design elements, known as a Best Performance Standard (BPS), to reduce GHG emissions. The BPS have not yet been established, though they must be designed to affect a 29-percent reduction when compared with the BAU projections identified in the ARB’s AB 32 Scoping Plan. No new percent reduction from BAU has been determined for meeting the SB 32 2030 target.

BAU represents the emissions that would occur in 2020 if the average baseline emissions during the 2002–2004 period were grown to 2020 levels, without control. These standards thus would carry with them pre-quantified emissions reductions, eliminating the need for project-specific quantification. Therefore, projects incorporating BPS would not require specific quantification of GHG emissions, and automatically would be determined to have a less than significant cumulative impact for GHG emissions.

For stationary source permitting projects, BPS means, “The most stringent of the identified alternatives for control of GHG emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service,

operation, or emissions unit class.” The Valley Air District has identified BPS for the following sources: boilers; dryers and dehydrators; oil and gas extraction, storage, transportation, and refining operations; cogeneration; gasoline dispensing facilities; volatile organic compound control technology; and steam generators.

For development projects, BPS means, “Any combination of identified GHG emission reduction measures, including project design elements and land use decisions that reduce project-specific GHG emission reductions by at least 29 percent compared with business as usual.” ARB’s adjusted inventory reduced the amount required by the State to achieve 1990 emission levels from 29 percent to 21.7 percent to account for slower growth experienced since the 2008 recession. Projects built today that comply with existing standards and regulations would generate emissions that would allow the State to remain below the 2020 target. In effect, BPS is achieved with adopted standards and regulations. Now that 2020 has arrived and the State emission inventory is below the target, a new target for 2030 and beyond is needed if the Valley Air District analysis BAU approach is to be applied to projects with post-2020 construction and buildout schedules. The work required to determine a reduction from BAU for later years has not been completed; therefore, an alternative measure of project consistency with State targets is needed.

### ***San Joaquin Valley Carbon Exchange***

The Valley Air District initiated work on the San Joaquin Valley Carbon Exchange in November 2008. The purpose of the carbon exchange is to quantify, verify, and track voluntary GHG emissions reductions generated within the San Joaquin Valley. However, the Valley Air District has pursued an alternative strategy that incorporates the GHG emissions into its existing Rule 2301—Emission Reduction Credit Offset Banking that formerly only addressed criteria pollutants. The Valley Air District is also participating with the California Air Pollution Control Officers Association (CAPCOA), of which it is a member, in the CAPCOA Greenhouse Gas Reduction Exchange (GHG Rx). The GHG Rx is operated cooperatively by air districts that have elected to participate. Participating districts have signed a Memorandum of Understanding (MOU) with CAPCOA and agree to post only those credits that meet the Rx standards for quality. The objective is to provide a secure, low-cost, high-quality, GHG exchange for credits created in California. The GHG Rx is intended to help fulfill compliance obligations, or mitigation needs of local projects subject to environmental review, reducing the uncertainty of using credits generated in distant locations.

### ***Rule 2301***

While the Climate Change Action Plan indicated that the GHG emission reduction program would be called the San Joaquin Valley Carbon Exchange, the District incorporated a method to register voluntary GHG emission reductions into its existing Rule 2301-Emission Reduction Credit Banking through amendments of the rule. Amendments to the rule were adopted on January 19, 2012. The purposes of the amendments to the rule include the following:

- Provide an administrative mechanism for sources to bank voluntary GHG emission reductions for later use.
- Provide an administrative mechanism for sources to transfer banked GHG emission reductions to others for any use.

- Define eligibility standards, quantitative procedures, and administrative practices to ensure that banked GHG emission reductions are real, permanent, quantifiable, surplus, and enforceable.

## Local

### *City of Patterson*

The City of Patterson has not yet adopted a Climate Action Plan. However, policies and goals related to climate change are included in the Air Resources and Climate Change Element of the City's General Plan, adopted on November 30, 2010. General Plan goals and policies relevant to GHG emissions include, but are not limited to, the following:

- AR-7.4 Greenhouse gas emissions from new development. The City shall implement measures to reduce the emission of greenhouse gases from new development. Such measures may include, but are not limited to, the following:
  - Discouraging auto-dependent patterns of development;
  - Promoting compact, mixed-use, pedestrian-friendly, and transit-oriented development;
  - Promoting energy-efficient building design and site planning using either Build It Green and LEED™ Silver standards for residential and non-residential buildings, respectively; and
  - Working to improve the ratio of jobs to housing.

### 3.7.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether greenhouse emissions impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?
- c) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- d) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

### 3.7.5 - Methodology

#### ***GHG Emissions Generation Calculation Methodology***

The emission estimates were developed consistent with the proposed land uses and construction schedule in Chapter 2, Project Description. The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to estimate the proposed project's construction and operation-related

GHG emissions. CalEEMod was developed in cooperation with air districts throughout the State and is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential GHG emissions associated with construction and operation from a variety of land uses.

### **Construction**

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction-related GHG emissions result from on-site and off-site activities. On-site GHG emissions principally consist of exhaust emissions from heavy-duty construction equipment. Off-site GHG emissions would occur from motor vehicle exhaust from material delivery vehicles and construction worker traffic. However, unlike air quality emissions that have both localized and regional impacts, GHG emissions are evaluated based on the total emissions generated. The construction parameters used to estimate the proposed project's construction-related GHG emissions were based on CalEEMod default assumptions. Full assumptions are detailed in the CalEEMod modeling output contained in Appendix C.

### **Operation**

Operational GHG emissions are those GHG emissions that occur during operation of the proposed project. The major sources and operational parameters used to estimate the proposed project's operation-related GHG emissions are summarized below. Full assumptions are detailed in the CalEEMod modeling output contained in Appendix C.

#### *Motor Vehicles*

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the project site. The emissions were estimated using CalEEMod. The weekday and Saturday trip generation rates for operations associated with the project were obtained from the transportation impact assessment (included in Appendix C). As weekend trips were not explicitly stated in the transportation impact assessment, weekday trip generation rates were applied to both Saturday and Sunday trips. This presents a conservative analysis because the Saturday and Sunday trip generation rates in the ITE Manual, 10<sup>th</sup> Edition for mid-rise multi-family housing (ITE Land Use Code 221) are lower than the weekday trip generation rate.

Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the project on an adjacent street or roadway that offers direct access to the generator. Pass-by trips are not diverted from another roadway. The CalEEMod defaults pass-by trips were used for this analysis.

The CalEEMod default trip lengths for an urban setting for Stanislaus County were used in this analysis. The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The CalEEMod default vehicle fleet mix for Stanislaus County was used for this analysis.

### *Landscape Equipment*

The use of landscaping equipment (leaf blowers, chain saws, mowers) would generate GHG emissions as a result of fuel combustion based on assumptions in CalEEMod.

### *Electricity*

The project will be served by Turlock Irrigation District. For the purpose of estimating GHG emissions for this analysis, emission factors from Turlock Irrigation District were used. Turlock Irrigation District provides estimates of its emission factor per megawatt hour of electricity delivered to its customers. Turlock Irrigation District emissions factor for 2017 for CO<sub>2</sub> is provided below. The rates for carbon dioxide are based on compliance with the Renewable Portfolio Standard.

- **Carbon dioxide:** 790 lb/MWh
- **Methane:** 0.029 lb/MWh
- **Nitrous oxide:** 0.006 lb/MWh

The factors listed below were applied in estimating emissions for the year 2022.

- **Carbon dioxide:** 519.59 lb/MWh
- **Methane:** 0.029 lb/MWh
- **Nitrous oxide:** 0.006 lb/MWh

SB 350 requires an increase in the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030. Therefore, the adjusted Turlock Irrigation District CalEEMod emission factors are shown below for the year 2030. SB 100 requires utilities to achieve a 60 percent renewable portfolio by 2030. The reductions from SB 100 have not been estimated.

- **Carbon dioxide:** 387.76 pound per megawatt hour (lb/MWh)
- **Methane:** 0.022 lb/MWh
- **Nitrous oxide:** 0.005 lb/MWh

CalEEMod has three categories for electricity consumption: Title 24-electricity; non-Title 24-electricity; and lighting. Title 24-electricity uses are defined as the major building envelope systems covered by California's Building Code Title 24 Part 6, such as space heating, space cooling, water heating, and ventilation. Lighting is separate since it can be both part and not part of Title 24. Since lighting is not part of the building envelope energy budget, CalEEMod does not consider lighting to have any further association with Title 24 references in the program. Non-Title 24-electricity includes everything else such as appliances and electronics. To properly divide the total electricity consumption into the three categories, the percentage for each category is determined by using percentages derived from the CalEEMod default electricity intensity. The percentages are applied to the electricity consumption to obtain the values used in the analysis.

### *Natural Gas*

There would be emissions from the combustion of natural gas used for the project (water heaters, heat, etc.). CalEEMod has two categories for natural gas consumption: Title 24-natural gas, and non-Title 24-natural gas. For purposes of this analysis, CalEEMod defaults were used.

### *Water and Wastewater*

GHG emissions are emitted from the use of electricity to pump water to the project site and to treat wastewater. CalEEMod default values were used in the analysis.

### *Solid Waste*

GHG emissions would be generated from the decomposition of solid waste generated by the project. CalEEMod was used to estimate the GHG emissions from this source. The CalEEMod default for the mix of landfill types is as follows:

- Landfill no gas capture—6 percent;
- Landfill capture gas flare—94 percent;
- Landfill capture gas energy recovery—0 percent.

### *Vegetation*

Zacharias Master Plan - This planning area contains agricultural land (orchards and row crops).  
Baldwin Master Plan - This planning area contains agricultural land (orchards)

There is currently some degree of carbon sequestration occurring on-site from existing agriculture. While the existing landscaping and trees would be removed, the project plan would include 62.7 acres of parks. This would provide on-site carbon sequestration. It was conservatively assumed that the loss and addition of carbon sequestration would be balanced; therefore, emissions due to carbon sequestration were not included.

### **Life Cycle Emissions**

An upstream GHG emissions source (also known as life cycle emissions) refers to emissions that are generated during the manufacturing and transportation of products that would be utilized for construction. Upstream emission sources for construction include but are not limited to GHG emissions from the manufacturing of cement and steel as well as from the transportation of building materials to the seller of such products. The upstream emissions associated with implementation of the project are difficult to estimate because (1) upstream emissions are not within the control of the project and (2) the information is not readily available. Therefore, to characterize these emissions would be speculative, and upstream emissions associated with construction have not been estimated as part of this impact analysis. Additionally, the California Air Pollution Control Officers Association (CAPCOA) White Paper on CEQA and Climate Change supports this approach by stating, “The full life-cycle of GHG emissions from construction activities is not accounted for . . . and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level.” Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream/life cycle emissions are speculative, and is not further discussed as part of this impact analysis.

### **GHG Emissions Reduction Plan Consistency Determination Methodology**

In determining whether a project or plan conflicts with any applicable plan, policy, or regulation, the CNRA has stated that in order to be used for the purpose of determining significance, an applicable plan, policy, or regulation must contain specific requirements that result in reductions of GHG emissions to a less than significant level. The project is assessed for its consistency with the ARB's adopted the ARB's adopted 2017 Climate Change Scoping Plan Update. Consistency would be achieved with an assessment of the project's compliance with applicable Scoping Plan measures. Since project buildout will be after 2030, a quantitative assessment was prepared to determine if project emissions at project buildout in 2040 would show reasonable progress toward achieving the State's 2050 goal of reducing emissions 80 percent below 1990 levels.

### **3.7.6 - Project Impacts and Mitigation Measures**

This section discusses potential impacts associated with the project and provides mitigation measures where necessary.

#### **GHG Emissions Generation**

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**Impact GHG-1: Buildout of the Master Plan would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

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#### **Impact Analysis**

##### *Threshold of Significance*

Section 15064.4(b) of the CEQA Guidelines' amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- **Consideration No. 1:** The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
- **Consideration No. 2:** Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- **Consideration No. 3:** The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The Master Plan analysis is based on a 20-year buildout with construction being completed in 2040. The latest legislated GHG reduction targets are from SB 32 with a 2030 target of reducing emissions 40 percent below 1990 levels. The strategy to achieve the 2030 targets is included in the ARB 2017 Scoping Plan. Executive Order S-3-05 includes a goal of reducing emissions by 80 percent below 1990 levels by 2050. Since the project will start construction after the 2020 AB 32 target year, no

assessment of consistency with the 2020 target is required. The ARB reports that emissions were below the 2020 target level in 2016 and 2017, so it is assumed that emissions will continue to stay below the 2020 target at the end of 2020. Since the project is expected to be completed 10 years after the 2030 target year, consistency is based on progress toward achieving the Governor’s 2050 goal between 2030 and 2050. Achieving the 2050 goal will require an average annual emission reduction of 2.7 percent per year between 2020 and 2050. To maintain this trajectory, the statewide inventory must be reduced by 40 percent by 2030 to 260 MMTCO<sub>2</sub>e and 53 percent by 2040 to 201 MMTCO<sub>2</sub>e. The methodology for determining the amount of reductions required as a fair share from development projects to help achieve the targets is discussed below.

The City of Patterson has not adopted its own GHG thresholds or prepared a Climate Action Plan that can be used as a basis for determining project significance, although it has a Sustainability Action Plan, which is a non-qualifying GHG reduction plan. The Valley Air District’s Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA includes thresholds based on whether the project will reduce or mitigate GHG levels by 29 percent from BAU levels compared with 2005 levels to achieve the 2020 target, but has not been updated to include targets for 2030 or later. Therefore, this analysis is based on consistency with the SB 32 2030 targets and the 2017 Scoping Plan and progress toward achieving the Governors Executive Order S-3-05 2050 goal.

The use of a reduction from BAU threshold is one approach that can be used if the reduction amount is supported by substantial evidence and accounts for local differences in emission sources and whether new development will provide greater reductions than existing development to comply with the Newhall Ranch Supreme Court decision. A BAU approach for 2030 and beyond has not been developed for the City of Patterson or the San Joaquin Valley; however, the statewide reductions required from development related sources and modeling using local assumptions has been used here as a threshold approach.

The 2017 Scoping Plan strategy for achieving the SB 32 targets would obtain a range of reductions from each emission sector. The plan uses ranges to account for uncertainty in technological advancements and market penetration of lower emitting transportation and energy options. The proposed plan would achieve the bulk of the reductions from Electric Power, Industrial fuel combustion, and Transportation. Cap-and-Trade would provide between 10 and 20 percent of the required reductions depending on the amounts achieved by the other reduction measures. This approach makes determining a community level or a project level target difficult. The GHG emission reductions by Scoping Plan sector are provided in Table 3.7-4.

**Table 3.7-3: 2017 Scoping Plan Update Estimated Change in GHG Emissions by Sector**

Scoping Plan Sector	Emissions (MMTCO <sub>2</sub> e per year)		
	1990	2030 Proposed Plan Ranges	Percent Change form 1990
Agriculture	26	24–25	-4 to -8
Residential and Commercial	44	38–40	-9 to -14
Electric Power	108	42–62	-43 to -61

Scoping Plan Sector	Emissions (MMTCO <sub>2</sub> e per year)		
	1990	2030 Proposed Plan Ranges	Percent Change form 1990
High GWP	3	8–11	167 to 267
Industrial	98	77–87	-11 to -21
Recycling and Waste	7	8–9	14 to 29
Transportation (including TCU)	152	103–111	-27 to -32
Net Sink	-7	TBD	TBD
<b>Subtotal</b>	<b>431</b>	<b>300–345</b>	<b>-20 to -30</b>
Cap-and-Trade Program	N/A	40–85	N/A
<b>Total</b>	<b>431</b>	<b>260</b>	<b>-40</b>

Source: ARB 2017 Scoping Plan Update (ARB 2017c).

Emissions from development projects are heavily weighted to transportation/mobile sources and energy use. Mobile sources comprise 59 percent of the project’s 2040 inventory. Energy use comprises 32 percent of the project’s inventory. The remaining sources comprise only 9 percent of the inventory. The reductions from the 1990 inventory estimated in the 2017 Scoping Plan for electric power are 43 to 61 percent and for transportation are 27 to 32 percent in 2030. The percentage reductions from the overall statewide inventory from electricity and transportation are from 56 to 67 percent. Therefore, the largest sources of emissions in development projects will also be subject to the most regulatory measures that are relied upon to achieve the target. The 2017 Scoping Plan includes the following summary of its overall strategy for reaching the 2030 target:

- SB 350
  - Achieve 50 percent RPS by 2030. (Currently 60 percent with SB 100 RPS revisions)
  - Doubling of energy efficiency savings by 2030.
- Low Carbon Fuel Standard
  - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020). (Amended by ARB to 20 percent effective January 1, 2019)
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
  - Maintaining existing GHG standards for light- and heavy-duty vehicles.
  - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
  - Increase ZEV buses, delivery and other trucks.
- Sustainable Freight Action Plan
  - Improve freight system efficiency.
  - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
  - Deploy over 100,000 zero-emission trucks and equipment by 2030.

- Short-Lived Climate Pollutant (SLCP) Reduction Strategy
  - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
  - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
- SB 375 Sustainable Communities Strategies
  - Increased stringency of 2035 targets.
- Post-2020 Cap-and-Trade Program
  - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
  - ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, ARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
- By 2018, develop Integrated Natural and Working Lands Action Plan to secure California’s land base as a net carbon sink.

Work is underway by members of the AEP Climate Change Committee to determine the share of development related emissions included in the 2017 Scoping Plan inventory for use in developing targets for climate action plans and project level analysis. Preliminary results indicate that the development related portion including reductions from Cap and Trade is 158 MMT CO<sub>2</sub>e per year or a per capita emission amount of 3.6 MT CO<sub>2</sub>e per person in 2030. The statewide target inventory including all sources is 260 MMT CO<sub>2</sub>e in the 2030 target year or 5.9 MT CO<sub>2</sub>e per person. Although the results have not been released, they provide a preliminary number that is used here to illustrate the scale of reductions required. By 2040, the development related inventory will need to decline to 201 MMT CO<sub>2</sub>e or 2.8 MT CO<sub>2</sub>e per person to make steady progress toward the 2050 goal. The Baldwin / Zacharias Master Plans include residential, commercial, and industrial uses providing a mix of development that is comparable to those in statewide development inventory. Therefore, a threshold based on achieving reductions less than or equal to the per capita rate required to achieve the SB 32 target and to make reasonable progress toward achieving the 2050 goal by 2040 would provide a valid quantitative threshold when used in conjunction with additional qualitative analysis for consistency with the 2017 Scoping Plan.

The California Supreme Court in the Newhall Ranch decision was concerned that new development may need to do more than existing development to reduce GHGs to demonstrate that it is doing its fair share of reductions. As will be shown below, new development does do more than existing development and, due to the nature of the sources of GHG emissions related to development, existing development is equally responsible for reducing emissions from the most important sources of emissions. It is important to note that most of the State’s regulatory program applies to new and existing development.

The State’s regulatory program is able to target both new and existing development because the two most important strategies—motor vehicle fuel efficiency and emissions from electricity generation—obtain reductions equally from existing and new development. This is because all vehicle operators

use cleaner low carbon fuels and buy vehicles subject to the fuel efficiency regulations, and all building owners or operators purchase cleaner energy from the grid that is produced by increasing percentages of renewable fuels. This includes regulations on mobile sources such as: The Pavley standards that apply to all vehicles purchased in California, the LCFS that applies to all fuel used in California, and the Renewable Portfolio Standard and Renewable Energy Standard that apply to utilities providing electricity to all California homes and businesses. The reduction strategy where new development is required to do more than existing development is building energy efficiency and energy use related to water conservation regulations. For example, new projects are subject to Title 24 Energy Efficiency standards and CALGreen Code and Model Water Efficient Landscape Ordinance (MWELO) water conservation requirements. Residential buildings constructed to the 2013 Title 24 standards use 25 percent less energy than buildings complying with the 2008 standards. 2016 Title 24 improved energy efficiency in residential buildings by 28 percent compared to the 2013 Title 24 standards and 46 percent compared with 2008 Title 24 standards. New buildings and landscapes are much more energy efficient and water efficient than the development that has been built over the past decades and will require much less energy. The 2019 Title 24 standards which became effective in January 2020 makes progress toward achieving net zero energy use through requirements for on-site renewable generation for most projects. The project buildings would be constructed after 2020 and would be required to comply with 2019 Title 24 standards. Additional reductions can be expected with next versions of Title 24 until net zero energy use is achieved.

The project analysis also includes a qualitative assessment of compliance with Scoping Plan strategies to support GHG significance findings under Impact GHG-2. There are no measures that identify specific requirements on development projects, but the analysis shows how the applicable measures affect project emission sources.

### **Construction**

Total GHG emissions generated during all years of construction were estimated using CalEEMod 2016.3.2 and are presented in Table 3.7-4. Construction emissions were assessed based on annual average construction activity for the residential and commercial/industrial land use categories. Separate model runs were prepared for the schools and parks since they are discrete projects and not spread out over the 20-year buildout. The annual average construction activity for residential, commercial and industrial was modeled for the year 2021 and the results were multiplied by 20 to reflect the 20-year buildout period at a steady rate of construction. The schools and parks were modeled for years 2022, and 2024. Using a model year early in the buildout period is a conservative assumption because emissions are expected to decrease as old construction equipment is replaced with new cleaner equipment. The Valley Air District does not recommend assessing the significance of construction-related GHG emissions. Any construction-related emissions would be temporary. However, other jurisdictions such as the South Coast Air Quality Management District (SCAQMD) and the Sacramento Metropolitan Air Quality Management District (SMAQMD) have concluded that construction emissions should be included since they may remain in the atmosphere for years after construction is complete. Therefore, the amortized construction-related GHG emissions have been added to the operational emissions for determining significance.

**Table 3.7-4: Construction Greenhouse Gas Emissions (Annual Average and Total Project)**

Construction Phase	Average Annual Emissions MT CO <sub>2</sub> e/Year	Cumulative Emissions over 20 Years MT CO <sub>2</sub> e
Residential	1,313.58	26,271.64
Commercial/Industrial	1,042.00	20,839.93
Elementary School	-	1,130.04
Middle School	-	1,204.33
Parks	-	445.91
<b>Total</b>	-	<b>49,891.85</b>
<b>Amortized over 30 Years</b>	-	<b>1,663.06</b>
Notes: Calculation totals use unrounded numbers from CalEEMod output. MTCO <sub>2</sub> e = metric tons of carbon dioxide equivalents Source: CalEEMod output (Appendix A).		

An additional model run was prepared for the Baldwin Master Plan area for information only. The model run uses a 2021 construction start year and the default construction schedule and equipment use in CalEEMod. The results of the modeling are provided in Table 3.7-5.

**Table 3.7-5: Construction Greenhouse Gas Emissions (Baldwin Master Plan)**

Construction Year	Emissions (MTCO <sub>2</sub> e/Year)
2021	601.41
2022	514.08
2023	507.68
2024	507.16
2025	462.88
2026	47.09
<b>Total</b>	<b>2,640.31</b>
<b>Amortized over 30 Years</b>	<b>88.01</b>
Notes: Calculation totals use unrounded numbers from CalEEMod output. MTCO <sub>2</sub> e = metric tons of carbon dioxide equivalents Source: CalEEMod output (Appendix C).	

**Operation**

Operational or long-term emissions occur over the life of the project. Sources of emissions include motor vehicles and trucks, energy usage, water usage, waste generation, and area sources, such as landscaping activities and residential wood burning. Operational GHG emissions associated with the

project were estimated using CalEEMod 2016.3.1. Full assumptions and CalEEMod model outputs are provided in Appendix C.

### **2040 Operational Emissions**

Operational emissions for the 2040 buildout year were modeled using CalEEMod. CalEEMod assumes compliance with some, but not all, applicable rules and regulations regarding energy efficiency, vehicle fuel efficiency, renewable energy usage, and other GHG reduction policies. The reductions obtained from each regulation and the source of the reduction amount used in the analysis are described below.

#### *Emissions Accounting for Applicable Regulations*

The following regulations are incorporated into the CalEEMod emission factors:

- Pavley I and Pavley II (LEV III) motor vehicle emission standards
- ARB Medium and Heavy-Duty Vehicle Regulation
- 2005, 2008, 2013, and 2016 Title 24 Energy Efficiency Standards

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emission reductions provided by the regulations:

- Renewable Portfolio Standards
- Low Carbon Fuel Standard
- Green Building Code Standards (indoor water use)
- California Model Water Efficient Landscape Ordinance (Outdoor Water)

Pavley II/LEV III standards have been incorporated in the latest version of CalEEMod. ARB estimates a 3 percent reduction in 2020 and a 19 percent reduction from the vehicle categories subject to the regulation by 2030.

The ARB GHG Regulation for Medium and Heavy-Duty Engines and Vehicles applies to trucks that will be accessing the project site. The benefits of the regulation were incorporated into CalEEMod 2016.3.2. The ARB estimates that this regulation will reduce GHG emissions from the affected vehicles by 7.2 percent.

The LCFS is estimated to achieve a 10 percent reduction in emissions by 2020 and a 20 percent reduction by 2030. CalEEMod does not include credit for the LCFS.

Title 24 reductions for 2013 and 2016 updates were added to CalEEMod 2016.3.2. The CEC estimates that 2013 Title 24 standards would result in an increase in energy efficiency of 25 percent in residential buildings compared to 2008 Title 24. An additional 28 percent reduction from the 2008 standards have been claimed for compliance with 2016 Title 24. This results in a combined reduction of 46 percent. Compliance with 2019 Title 24 is expected to reduce residential energy use by 7 percent beyond 2016 Title 24. 2019 Title 24 requires new residential development include solar panels to generate electricity. The project will include solar panels on each residential unit in

quantities that meet or exceed Title 24 requirements. Non-residential projects would achieve a reduction electricity of 10.7 percent and natural gas of 1 percent compared to the 2016 standards.

RPS is not accounted for in CalEEMod 2016.3.2. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the utility RPS rate forecast for 2030 to meet the 50 percent mandate. Utilities will be required by SB 100 to increase the use of renewable energy sources to 60 percent by 2030, but details on individual utility compliance have not been determined.

Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations. Benefits of the water conservation regulations are applied in the CalEEMod mitigation component.

Reductions in emissions from solid waste are based on the City achieving the CalRecycle 75 Percent Initiative by 2020 compared with a 50 percent baseline for 2005. Reductions are taken using the CalEEMod mitigation component.

Regulations applicable to project sources and the percent reduction anticipated from each source are shown in Table 3.7-6. The percentage reductions are only applied to the specific sources subject to the regulations. For example, the Pavley Low Emission Vehicle Standards apply only to light duty cars and trucks.

**Table 3.7-6: Reductions from Greenhouse Gas Regulations**

Regulation	Project Applicability	Reduction Source	Percent Reduction in 2020 and 2030
Pavley Low Emission Vehicle Standards	Light-duty cars and trucks accessing the site are subject to the regulation.	CalEEMod defaults (Pavley I)	25.1 <sup>1</sup>
		Adjusted GHG emission factor (Pavley II/LEV III) in CalEEMod.	3% 2020 19.5% 2030 <sup>2</sup>
Truck and Bus Regulation	Heavy-duty trucks accessing the site for deliveries and services are subject to the regulation.	Adjusted GHG emission factors for the regulation in CalEEMod	7.2% <sup>3</sup>
Low Carbon Fuel Standard (LCFS)	Vehicles accessing the site will use fuel subject to the LCFS	CalEEMod defaults	10% 2020 18% 2030 <sup>1</sup>
Title 24 Energy Efficiency Standards	Project buildings will be constructed to meet the latest version of Title 24 (currently 2019). Reduction applies only to energy consumption subject to the regulation.	CalEEMod defaults CalEEMod mitigation component for 2019 standards (residential)	35% <sup>4,5</sup> 7% <sup>10</sup>
Green Building Code Standards	The project will include water conservation features required by the standard	CalEEMod mitigation component	20% <sup>6</sup>

Regulation	Project Applicability	Reduction Source	Percent Reduction in 2020 and 2030
Water Efficient Land Use Ordinance	The project landscaping will comply with the regulation	CalEEMod mitigation component	20% <sup>7</sup>
Renewable Portfolio Standard (RPS)	Electricity purchased for use at the project site is subject to the 50 percent RPS mandate	CalEEMod adjusted energy intensity factors based on TID achieving the 50 percent mandate.	50% <sup>8</sup>
Solid waste	The solid waste service provider will need to provide programs to increase diversion and recycling to meet the 75 percent mandate.	CalEEMod mitigation component	25% <sup>9</sup>

Notes:

Regulations are described in Section 2.3 Regulatory Environment. The source of the percentage reductions from each measure are from the following sources:

- <sup>1</sup> Pavley 1 + Low Carbon Fuel Standard Postprocessor Version 1.0 User’s Guide (ARB 2010b)
- <sup>2</sup> ARB Staff Report for LEV III Amendments (ARB 2013e)
- <sup>3</sup> ARB Staff Report for GHG Regulations for Medium and Heavy-Duty Engines and Vehicles (ARB 2013f)
- <sup>4</sup> California Energy Commission News Release: New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions (CEC 2014b)
- <sup>5</sup> California Energy Commission Adoption Hearing Presentation: 2016 Buildings Energy Efficiency Standards (CEC 2015)
- <sup>6</sup> 2013 California Green Building Standards Code Section 5.303.2 (CBSC 2013)
- <sup>7</sup> California Water Plan Update 2018 (CDWR 2018)
- <sup>8</sup> Based on CalEEMod default TID rate for 2005 and achieving the 50 percent mandate by 2030
- <sup>9</sup> CalRecycle 75 Percent Initiative: Defining the Future (CalRecycle 2016b)
- <sup>10</sup> 2019 Building Energy Efficiency Standards Frequently Asked Questions (CEC 2018).

It is important to note that reductions listed in Table 3.7-6 do not include new strategies proposed in the 2017 Scoping Plan Update. The plan was adopted in December 2017. The plan provides alternatives in terms of their likelihood of implementation and ranges of reduction from the strategies. Measures already authorized by legislation are highly likely to be implemented, while measures requiring new legislation are less likely to go forward. The State is highly likely to incorporate zero net energy buildings in future updates to Title 24 and now requires solar panels in most residential development. A new round of motor vehicle fuel efficiency standards beyond 2025 when LEV III standards are at their maximum reduction level is highly likely. Changing heavy-duty trucks and off-road equipment to alternative fuels face greater technological hurdles and are less likely to provide dramatic reductions by 2030. Reductions from achieving 60 percent RPS by 2030 have not been included in this analysis.

In addition to rules and regulations, the project will provide design features and infrastructure encouraged by General Plan policies and City of Patterson design standards that would reduce project vehicle miles traveled compared to default values. Note that CalEEMod nominally treats these design elements and conditions as “mitigation measures,” despite their inclusion in the project description. Therefore, reported operational emissions are considered to represent unmitigated project conditions.

The GHG emission analysis for the Baldwin / Zacharias Master Plan was separated into 5 different model runs. These include residential, commercial/industrial, elementary school, middle school, and parks. The model runs for residential and commercial/industrial reflect the cumulative project buildout in 2040. The model runs for the schools and parks were run as discrete projects with a 2040 operation year to match the buildout year for the entire project. An additional run for only the Baldwin Master Plan was run for information only. The emissions for each component were added to determine the total emissions at buildout from all Master Plan land uses.

Full assumptions and model outputs are provided in Appendix C. Results of this analysis are presented in Table 3.7-7.

**Table 3.7-7: Project Operational Greenhouse Gases 2040**

MT CO <sub>2</sub> e/Year						
Source	Residential	Commercial/ Industrial	Elementary School	Middle School	Parks	Project Buildout
Area	2,456.58	0.15	0.01	0.02	0.00	2,456.76
Energy	10,890.79	25,223.25	111.41	273.73	0.00	36,499.17
Mobile	24,452.97	42,289.48	315.50	694.86	198.30	67,951.11
Waste	1,129.54	3,261.97	34.42	82.60	2.03	4,510.55
Water	773.65	3,100.15	3.79	8.53	36.85	3,922.96
<b>Total</b>	<b>39,703.52</b>	<b>73,875.00</b>	<b>465.12</b>	<b>1,059.74</b>	<b>237.18</b>	<b>115,340.55</b>
Amortized Construction Emissions						1,663.06
<b>Total with Construction</b>						<b>117,003.61</b>
Project Population	19,988					
Project Per Capita Emissions						<b>5.85</b>
Per Capita Emissions Threshold for 2040						<b>2.79</b>
Are emissions potentially significant?	Yes					
Notes: MTCO <sub>2</sub> e = metric tons of carbon dioxide equivalents						
Source: CalEEMod model output (Appendix C).						

As shown in Table 3.7-8, the project would result in emissions of 5.9 MT CO<sub>2</sub>e per person compared to the threshold of 2.8 MT CO<sub>2</sub>e per person. Reducing emissions to below the threshold would

require additional reductions totaling 55,775 MT CO<sub>2</sub>e. The results include CalEEMod reductions for site design measures that provide credit for location near employment centers and for pedestrian infrastructure.

It is currently speculative to quantify the emissions savings from future regulatory measures, as they have not yet been developed; however, it can be anticipated that during the 20 year buildout period, regulations will be adopted to implement the 2017 Scoping Plan and another Scoping Plan is likely to be developed to achieve post-2030 targets. The City has no regulatory authority over the largest project source (motor vehicles); however, the project design features supporting multimodal travel such as bike paths, pedestrian connections, and transit service will result in decreases in VMT consistent with SB 375 requirements for 2035. New residences located within the Master Plan will be near net zero electricity use to comply with 2019 Title 24 standards when reductions from solar panels is included. Nonresidential projects constructed after 2030 are likely to be constructed to near net zero standards. Additional reductions will be achieved when the electric utility achieves the 60 percent RPS mandate in 2030. The amount of reductions attributable to the project from these regulations has not been determined; therefore, project GHG emissions may exceed the per capita threshold for 2040.

The operational emissions associated with the Baldwin Master Plan are provided in Table 3.7-9. The Baldwin project includes only residential development, so emissions from commercial and industrial uses are not included. This result is lower per capita emissions compared to the full project.

**Table 3.7-8: Baldwin Master Plan Operational Greenhouse Gases**

Emission Source	Emissions (MT CO <sub>2</sub> e per year)
Area	136.70
Energy	871.05
Mobile (Vehicles)	1,721.50
Waste	118.40
Water	43.05
<b>Total Emissions</b>	<b>2,890.71</b>
<b>Construction Emissions (Amortized over 30 Years)</b>	<b>88.01</b>
<b>Total Project Emissions</b>	<b>2,978.72</b>
Population (CalEEMod)	<b>872</b>
<b>Per Capita Emissions</b>	<b>3.42</b>
Notes: MT CO <sub>2</sub> e = metric tons of carbon dioxide equivalent. Unrounded results used to calculate totals. Source of Emissions: CalEEMod Output (Appendix C)	

The 2017 Scoping Plan Update suggests that all new land use development implement all feasible measures to reduce GHG emissions. The Scoping Plan does not define all feasible measures or attribute an amount of reductions required from new development beyond compliance with regulations. When requiring mitigation of a project's fair share of a cumulative impact, the Lead Agency must show the nexus between the project contribution and its fair share of mitigation to reduce the impact to less than cumulatively considerable.

The following discussion assesses the feasibility of mitigation considered for the project. Measures must exceed the amounts required by regulation in order to be considered mitigation, but for a project that has a 20-year buildout schedule, new and modified regulations applicable to project emission sources can be expected throughout the development timeframe. This creates a conflict between requirements to mitigate significant impacts to the extent feasible and requirements to mitigate only a fair share of the impact. Mitigation measures requiring projects to exceed energy efficiency standards by a certain percentage become obsolete quickly when the standards are revised every three years. Adopted standards are generally superior to mitigation measures because they are supported by technical analysis and a public review process to determine feasibility and fairness. Project mitigation measures are often applied with limited review for feasibility or by requiring applicants to prove infeasibility. When there is a well-established regulatory program in place that is intended to address the impact, going beyond the regulation circumvents the regulatory process and becomes regulation by mitigation. Therefore, no energy efficiency mitigation beyond Title 24 and the CalGreen Building Code has been included in the project.

For large Master Plans and General Plan updates it is common to rely on goals and policies to mitigate significant impacts on a programmatic basis. The 2010 General Plan includes goals and policies related to climate change that will help reduce project impacts. In addition, the City of Patterson Community Design Guidelines help ensure that projects are designed in ways that support walking, and bicycling, provide well connected streets, and provide site orientation to optimize passive solar heating and lighting and that optimizes solar energy installations. Additional design guidelines address water conservation, parking, and use of neotraditional design. By following the Design Guidelines, project implementing the Baldwin / Zacharias Master Plan will be applying the measures suggested by the 2017 Scoping Plan for land use projects. Mitigation Measure (MM) TRANS-2 requires that Transportation Demand Management measures be assessed and implemented as development occurs pursuant to the Master Plan which includes things such as pedestrian, bicycle, and transit facilities.

The project is assumed to use natural gas for space and water heating purposes. The 2017 Scoping Plan indicates that increased use of electricity for heating will be required to meet net zero energy goals. Mandating electricity for heating is best addressed through a statewide regulatory process that provides uniform standards and timelines for implementation for all development rather than as a mitigation measure.

Large industrial and commercial projects that employ more than 100 persons with arrival times during peak traffic hours are subject to Valley Air District Rule 9410 Employer Based Trip Reduction. Employers are required to implement an Employer Trip Reduction Implementation Plan (ETRIP) for each worksite and to meet the applicable point targets specified in the Rule. Measures such as ride share programs, transportation demand management programs, on-site facilities to encourage the

use of alternative travel modes are among the types of measures included in the ETRIP plans. Compliance with this rule will reduce GHG emissions from commute trips. MM TRANS-2 requires that Transportation Demand Management measures be assessed and implemented as development occurs pursuant to the Master Plan consistent with ETRIP.

Another potential mitigation option is to require developers to purchase carbon offsets to reduce emissions to less than significant levels. Carbon offset markets are being established with programs such as the Climate Action Reserve. The cost of carbon offsets is subject to market forces and the cost to develop and maintain offset projects. Projects with approved protocols include forestry, and livestock methane capture. The Master Plan would likely be developed by multiple developers over the 20-year buildout period. Each project would require its own analysis to determine its fair share of the mitigation requirement and procedures for tracking and monitoring implementation. The City and most developers do not have resources to manage such a program. In addition, as discussed earlier, the amount of mitigation required would vary depending on reductions achieved by new regulations. Requiring developers and future residents and businesses to further mitigate emissions without accounting for compliance with regulations would result in double mitigation, first by the developer and then by the residents and businesses purchasing electricity, fuel, and vehicles compliant with regulations in effect at the time of purchase and beyond that would violate constitutional nexus requirements.

In conclusion, project emissions from development prior to 2030 would not achieve the emission reduction requirements to demonstrate consistency with the 2017 Scoping Plan targets for 2030. In addition, the project would exceed the per capita threshold for development related emissions needed to demonstrate sufficient progress toward the Governor's 2050 goal by project buildout in 2040. The development related per capita emission target for 2040 is 2.79 MT CO<sub>2</sub>e per person compared to the project per capita emissions project per capita emissions are 5.85 MT CO<sub>2</sub>e. Mitigation measures to reduce the impact to below the threshold are not feasible. Therefore, this impact is considered significant and unavoidable.

***Level of Significance Before Mitigation***

Potentially significant impact.

***Mitigation Measures***

Implement Mitigation Measure TRANS-2.

***Level of Significance After Mitigation***

Significant unavoidable impact.

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## Conflict with Plan, Policy, or Regulation that Reduces Emissions

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**Impact GHG-2:**      **Buildout of the Master Plan may conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.**

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### *Impact Analysis*

The City of Patterson has not adopted a GHG reduction plan or Climate Action Plan. In addition, the City has not completed the GHG inventory, benchmarking, and goal-setting process required to identify a reduction target and to take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97. The Valley Air District has adopted a Climate Action Plan, but it does not contain measures that are applicable to development projects. Therefore, the Valley Air District Climate Action Plan cannot be applied to the project. Since no other local or regional Climate Action Plan is in place, the project is assessed for its consistency with ARB's adopted Scoping Plan. This would be achieved with an assessment of the project's compliance with Scoping Plan measures.

### *Scoping Plan*

The California State Legislature adopted AB 32 in 2006 which included a goal of reducing emissions to 1990 levels by 2020. The 2008 Scoping Plan provided a strategy for achieving the AB 32 target. The California GHG emission inventory was below the target in 2016 and 2017 and is expected to stay below the target in the 2020 milestone year. The project would begin construction after 2020; therefore, the 2008 Scoping Plan is not applicable to the project. The 2017 Scoping Plan Update provides the State's strategy to achieve the SB 32 target of reducing GHG emissions by 40 percent below 1990 levels by 2030. The following consistency analysis applies to the 2017 Scoping Plan and later State goals.

### *Consistency with California's Post-2020 Targets*

The State's executive branch adopted several Executive Orders related to GHG emissions. Executive Orders S-3-05 and B-30-15 are two examples. Executive Order S-3-05 sets goals to reduce emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The goal of Executive Order S-3-05 to reduce GHG emissions to 1990 levels by 2020 was codified by AB 32. The project will be constructed after the 2020; therefore, the project does not conflict with this component of Executive Order S-3-05. Executive Order B-30-15 establishes an interim goal to reduce GHG emissions to 40 percent below 1990 levels by 2030.

The 2030 goal was codified under SB 32 and is now addressed by the 2017 Scoping Plan Update. The new plan provides a strategy that is capable of reaching the SB 32 target if the measures included in the plan are implemented and achieve reductions within the ranges expected. Under the Scoping Plan Update, local government plays a supporting role through its land use authority and control over local transportation infrastructure. The 2017 Scoping Plan includes reductions from implementation of SB 375 that applies to VMT from passenger vehicles. Stanislaus County targets for SB 375 are a 5 percent reduction by 2020 and a 10 percent reduction by 2035. SB 375 is implemented with the StanCog Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS envisions an increase in development density that would encourage fewer

and shorter trips and more trips by transit, walking, and bicycling in amounts sufficient to achieve the SB 375 targets.

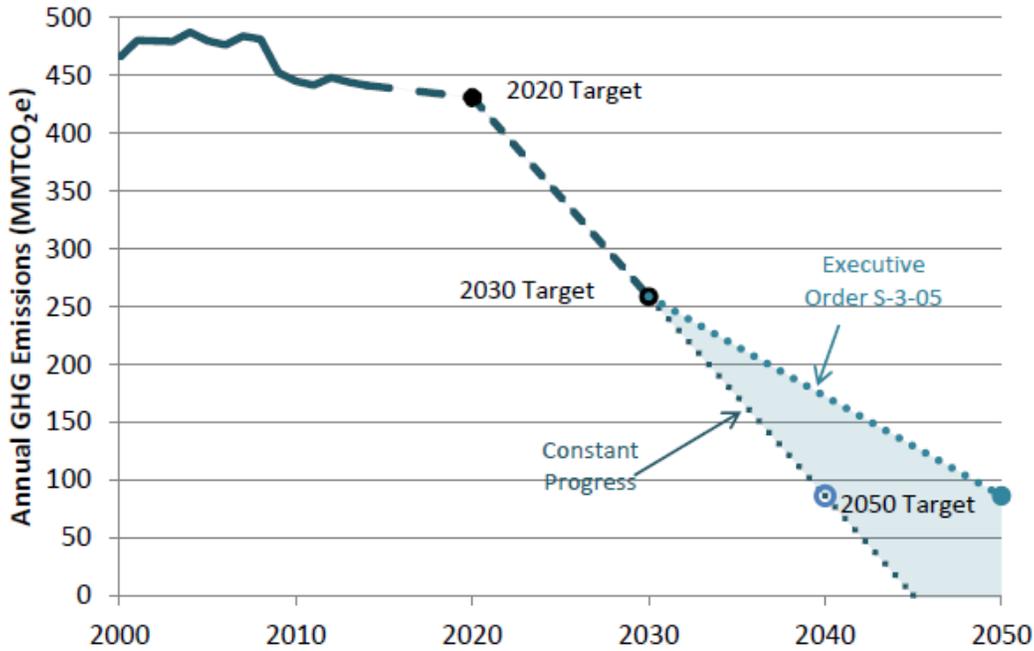
The Executive Order S-3-05 2050 target has not been codified by legislation. Studies have shown that, in order to meet the 2050 target, aggressive pursuit of technologies in the transportation and energy sectors, including electrification and the decarbonization of fuel, will be required. Because of the technological shifts required and the unknown parameters of the regulatory framework in 2050, quantitatively analyzing the project's impacts further relative to the 2050 goal is speculative for purposes of CEQA (ARB 2014b).

AB 32 and now SB 32 established an emissions reduction trajectory that will allow California to achieve the more stringent 2050 target: The greenhouse gas emission reduction measures contained in the 2008 and 2017 Scoping Plans indicate that they put the State on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels on a trajectory consistent with the reductions that are needed globally to stabilize the climate. Many of the emission reduction strategies adopted to achieve the AB 32 targets will continue to provide reductions that will help achieve the post-2020 targets:

- **Energy Sector:** Continued improvements in California's appliance and building energy efficiency programs and initiatives, such as the State's zero net energy building goals, would serve to reduce the proposed project's emissions level. Additionally, further additions to California's renewable resource portfolio would favorably influence the project's emissions level.
- **Transportation Sector:** Anticipated deployment of improved vehicle efficiency, zero emission technologies, lower carbon fuels, and improvement of existing transportation systems all will serve to reduce the project's emissions level.
- **Water Sector:** The project's emissions level will be reduced as a result of further desired enhancements to water conservation technologies.
- **Waste Management Sector:** Plans to further improve recycling, reuse and reduction of solid waste will beneficially reduce the project's emissions level.

For the reasons described above, the project's emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets.

### California’s Path to Achieving the 2050 Target



Source: ARB 2017 Scoping Plan Update (ARB 2017c)

Further, recent studies show that the State’s existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030, and to 80 percent below 1990 levels by 2050. Even though these studies did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, they demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the studies could allow the State to meet the 2050 target (Energy and Economics 2015).

Given the proportional contribution of mobile source-related GHG emissions to the State’s inventory, recent studies also show that relatively new trends—such as the increasing importance of web-based shopping, the emergence of different driving patterns by the “millennial” generation, and the increasing effect of web-based applications on transportation choices—are beginning to substantially influence transportation choices and the energy used by transportation modes. These factors have changed the direction of transportation trends in recent years and will require the creation of new models to effectively analyze future transportation patterns and the corresponding effect on GHG emissions. For the reasons described above, the proposed project’s post-2020 emissions trajectory through its 2040 buildout is expected to follow a declining trend, consistent with the SB 2030 target and 2050 goal.

#### Consistency with SB 32

The 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) includes the strategy that the State intends to pursue to achieve the 2030 targets of Executive Order S-3-05 and SB 32. The 2017

Scoping Plan includes the following measures in Table 3.7-10 for reaching the 2030 target. As shown Table 3.7-9, the project is consistent with most of the strategies, while others are not applicable to the project.

**Table 3.7-9: SB 32 2017 Scoping Plan Update Consistency Analysis**

Scoping Plan Measure	Project Consistency
<b>SB 350 50% Renewable Mandate.</b> Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030.	<b>Consistent:</b> The project will purchase electricity from a utility subject to the SB 350 Renewable Mandate.
<b>SB 350 Double Building Energy Efficiency by 2030.</b> This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels	<b>Not Applicable.</b> This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency until residential housing achieves zero net energy.
<b>Low Carbon Fuel Standard.</b> This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	<b>Consistent.</b> Vehicles accessing the project site will use fuel containing lower carbon content as the fuel standard is implemented.
<b>Mobile Source Strategy (Cleaner Technology and Fuels Scenario)</b> Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	<b>Consistent.</b> Project residents and businesses can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year. The 2016 CALGreen Code requires electrical service in new single-family housing and commercial projects to be EV charger-ready. Home deliveries will be made by increasing numbers of ZEV delivery trucks.
<b>Sustainable Freight Action Plan</b> The plan’s target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	<b>Not Applicable.</b> The measure applies to owners and operators of trucks and freight operations. However, home and business deliveries are expected to be made by increasing number of ZEV delivery trucks.
<b>Short-Lived Climate Pollutant (SLCP) Reduction Strategy.</b> The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	<b>Consistent.</b> The project will include only natural gas hearths that produce very little black carbon compared to woodburning fireplaces and heaters. Businesses with large refrigeration systems are subject the ARB Refrigeration Management Program.
<b>SB 375 Sustainable Communities Strategies.</b> Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled. The targets for Fresno County are	<b>Consistent.</b> The project will provide residential development and jobs in the region that is consistent with the Regional Transportation Plan/Sustainable Communities Strategy (SCS) strategy to increase development densities to reduce VMT. The project is not within an SCS priority area and so is not subject to requirements applicable to those areas.

Scoping Plan Measure	Project Consistency
<p><b>Post-2020 Cap-and-Trade Program.</b> The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.</p>	<p><b>Consistent.</b> The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period.</p>
<p><b>Natural and Working Lands Action Plan.</b> The ARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.</p>	<p><b>Not Applicable.</b> The project includes residential and nonresidential development and will not be considered natural or working lands.</p>
<p>Source: ARB 2017 Scoping Plan Update.</p>	

Regarding the goal for 2050 under Executive Order S-3-05, at this time it is premature to provide analysis specifically for this milestone. However, the project analysis assesses the progress needed by the 2040 project buildout year to be on track to achieving the 2050 goal. As was discussed earlier, it is not possible to quantify the benefits of strategies that are yet to be adopted. The 2017 Scoping Plan provides the first step toward achieving longer term goals with its 2030 targets and well-developed regulatory strategy supported by legislation that will help ensure that the required measures are implemented. Legislative action to mandate a 2040 or 2050 target and additional Scoping Plans to address post-2030 targets will be needed to ensure progress continues.

Although the project is consistent with 2017 Scoping Plan measures, the project would not be consistent with the 2030 targets for the portions of the project that would be built by 2030 and could conflict with implementation of the 2017 Scoping Plan if sufficient regulations implementing the 2017 Scoping Plan are not adopted to achieve the 2030 target. In addition, based on the analysis of per capita project emissions at buildout in 2040, the GHG reductions achieved by project design features and compliance with applicable regulations would not be sufficient to show steady progress toward the 2050 goal. In the First Scoping Plan Update; however, ARB generally described the type of activities required to achieve the 2050 target: “energy demand reduction through efficiency and activity changes; large scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean

energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately.” The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress toward the 2050 target by 2030. It is not possible to predict the course of future legislative action on climate change. Therefore, the project may be considered inconsistent with achieving the 2050 goal. Feasible measures are not available for the project to reduce emissions to the levels required by 2040. Therefore, this impact is considered significant and unavoidable.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

Implement Mitigation Measure TRANS-2.

### ***Level of Significance After Mitigation***

Significant and unavoidable.

## **Energy**

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**Impact GHG-3: Buildout of the Master Plans would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.**

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### ***Impact Analysis***

Appendix F of the CEQA Guidelines applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. Appendix F does not prescribe a threshold for the determination of significance. Rather, Appendix F focuses on reducing and minimizing inefficient, wasteful, and unnecessary consumption of energy. Therefore, for the purposes of this EIR, a significant impact to energy would result if the project would:

1. Result in the wasteful and inefficient use of nonrenewable resources during its construction.
2. Result in the wasteful and inefficient use of nonrenewable resources during long-term operation.
3. Be inconsistent with Adopted Plans and Policies.

### ***Construction Energy Consumption***

Project construction is assumed to take 20 years to complete. Construction activities would consume energy through the operation of heavy off-road equipment, trucks, and worker traffic. Construction equipment fuel consumption for each of was based on equipment lists generated using CalEEMod default values. The construction equipment quantities and types are CalEEMod values for each type of development in the Master Plan. The fuel consumption of off-road equipment calculated in this analysis is based on a SCAQMD estimated fuel consumption rate of 0.05 gallons per horsepower hour and the horsepower, usage hours, and load factors from CalEEMod model runs prepared for the project’s air quality analysis.

Based on the information in Table 3.5-2 and the anticipated construction schedule, construction equipment would result in the consumption of approximately 534,755 gallons of diesel fuel over the entire 20-year construction period.

Worker, vendor, and haul trips would result in approximately 3,056,220 VMT over the entire construction period. A countywide average fuel consumption of 21.1 mpg obtained from EMFAC 2017 was used to determine fuel consumption from worker, vendor, and haul trips. As a result, construction worker, vendor, and haul trips would consume approximately 144,845 gallons of motor vehicle fuel during the entire 20 years of construction.

Although the proposed project would result in the consumption of an estimated 534,755 gallons of diesel and 144,845 gallons of motor vehicle fuels during construction, the project is expected at to achieve energy efficiencies typical for residential and non-residential projects in California. Construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with local, state, and federal regulations limiting engine idling times and require recycling of construction debris, would further reduce the amount of transportation fuel demand during project construction. Considering these reductions in transportation fuel use, the proposed project would not result in the wasteful and inefficient use of energy resources during construction and impacts would be less than significant. Detailed modeling results are provided in Appendix C.

#### *Operation Energy Consumption*

Long-term energy consumption associated with the project includes electricity and natural gas consumption by residents and the commercial and industrial portions of the project. Energy is also used for water conveyance, and long-term vehicle operations from residents and businesses.

#### *Electricity and Natural Gas Consumption*

During operations the proposed project would consume natural gas for space heating, water heating, and cooking associated with the land uses on the project site. The natural gas consumption was estimated for each of the project's land uses based on the CalEEMod default values. The results of the analysis indicate that the project would consume approximately 196,852,440 thousand British thermal units (kbtu) per year of natural gas per year during operation.

In addition to the consumption of natural gas, the proposed project would use electricity for lighting, appliances, and other uses associated with the project's land uses. Electricity use during operations was estimated using CalEEMod default values for project's specific land uses. The results of the modeling indicate that the project would use approximately 142,260,106 kilowatt-hours (kWh) of electricity per year. 2019 Title 24 requires the installation of solar panels in residential developments. The amount installed can vary due to local conditions and project design. In addition, some projects may use community solar installations instead of roof top solar. Although, the energy estimates assume no solar will be installed, most electricity used by the residential portions of the project is expected to be generated by zero emission renewable sources. Non-residential projects are not currently subject to mandatory solar installations; however, the State's goal is for non-residential development to be net zero energy consumption by 2030.

As described above the proposed project would result in a long-term increase in demand for electricity from the Turlock Irrigation District and natural gas from PG&E. However, the project would be designed to meet the most recent Title 24 standards. Title 24 specifically establishes energy efficiency standards for residential and non-residential buildings constructed in the State of California in order to reduce energy demand and consumption. Title 24 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. Therefore, impacts from the wasteful or inefficient use of electricity or natural gas during operation of the project would be less than significant.

#### *Water Treatment, Conveyance, and Distribution*

Water used for indoor and outdoor purposes requires electricity for water treatment, conveyance, and distribution. The project's water demand was calculated based on default values for the specific land uses proposed by the project using CalEEMod. Based on this methodology the proposed project is estimated to use approximately 1,650 million gallons of indoor water per year as well as 278 million gallons of outdoor water per year. This would result in the use of approximately 6,748,120 kWh of electricity per year.

Although the proposed project would result in electricity use from the treatment, conveyance, and distribution of water to the project site, the project would also require all water fixtures to be compliant with the 2013 California Green Building Standards Code and the MWELD, which would reduce the amount of water used by the project and require compliance with regulations relating to drought conditions. Therefore, the project would not result in the wasteful or inefficient use of electricity for water treatment, conveyance, and distribution and impacts would be less than significant.

#### *Wastewater Service*

The project would be served by the City of Patterson Wastewater Treatment Facility (WWTF). Project wastewater generation was estimated using CalEEMod default assumptions for indoor water use required by the project land uses. Project indoor water use of 1,650 Mgal per day would result in the use of 3,153,813 kWh of electricity per year. Compliance with the 2013 California Green Building Standards Code, would reduce the wastewater generated by the project. Energy used for treating project wastewater will increasingly be generated by renewable energy sources to comply with RPS standards that apply to the energy utility serving the project area.

The project site and the entire City of Patterson are nearly flat, but slope in the direction of the WWTF. The elevation at the project site is approximately 113 feet and the elevation at the WWTF is approximately 53 feet. This is expected to limit the need to pump wastewater to a great extent since gravity will do most of the work in moving the effluent. The WWTF would use standard treatment equipment that would not result in wasteful energy use. Any new facilities that are needed to accommodate the project would be required to meet the latest standards and technologies.

Wastewater service would require an extension of sewer lines to the treatment plant. The energy added for the extension and use of these facilities combined with the project's estimated electricity and natural gas consumption would not result in substantial new energy generation or transmission infrastructure due to the location and capacity of existing energy infrastructure near the project site.

Additionally, the project would be constructed over 20 years allowing for gradual expansion of facilities. Therefore, the project would not result in the wasteful or inefficient use of electricity for wastewater treatment, and impacts would be less than significant.

#### *Fuel Consumption*

During operation of the proposed project vehicle trips would be generated by the project's specific land uses. The project's specific land uses were modeled in CalEEMod using ITE 10<sup>th</sup> Edition vehicle trip generation rates. As shown in Appendix C, the vehicle trips generated would result in approximately 233,894,978 VMT per year. Based on a countywide average fuel consumption of 21.1 mpg from Emission Factor (EMFAC) 2017 for all vehicle classifications for 2022, the proposed project would result in the consumption of an estimated 11,085,070 gallons per year of transportation fuel.

Various federal and state regulations including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program would serve to reduce the project's transportation fuel consumption progressively into the future. Therefore, the project would be designed to avoid the wasteful and inefficient use of transportation fuel during operations and impacts would be less than significant.

State and federal regulatory requirements addressing fuel efficiency are expected to increase fuel efficiency over time as older, less fuel-efficient vehicles are retired. The efficiency standards and light/heavy vehicle efficiency/hybridization programs, contribute to increased fuel efficiency and therefore would reduce vehicle fuel energy consumption rates over time. The annual vehicular energy consumption calculated for the proposed project was based on 2022 average rates for Stanislaus County. This is considered a conservative estimate because rates are expected to decline significantly by project buildout in 2040. While the project would increase the consumption of gasoline and diesel proportionately with projected population and employment growth, the increase would be accommodated within the projected growth as part of the energy projections for the state and the region and would not require the construction of new regional energy production facilities. Therefore, energy impacts related to fuel consumption/efficiency during project operations would be less than significant.

As described above, the project would result in less than significant impacts on the wasteful, inefficient, or unnecessary use of energy due to project design features that will comply with the City's design guidelines and regulations that apply to the project such as Title 24 Building Energy Efficiency Standards and the California Green Building Standards Code that apply to commercial and residential buildings. These regulations are expected to become increasingly stringent over time and would require the project to minimize the wasteful and inefficient use of energy. Furthermore, various federal and state regulations including the Low Carbon Fuel Standard, Pavley Clean Car Standards, and Low Emission Vehicle Program would serve to reduce the transportation fuel demand by Master Plan projects.

With the adherence to the increasingly stringent building and vehicle efficiency standards as well as implementation of the project's design features that would reduce energy consumption, the proposed project would not contribute to a cumulative impact to the wasteful or inefficient use of energy. As such, the project would not result in a significant environmental impact due to wasteful,

inefficient, or unnecessary consumption of energy resources, during project construction or operation.

A summary of the project’s estimated energy consumption is provided in Table 3.7-10.

**Table 3.7-10: Energy Consumption Summary**

Activity	Variable	Consumption Rate	Annual Consumption
Residential Electricity	5,481 dwelling units	5,053 kWh/unit/year	27,694,820 kWh/year
Residential Natural Gas		17,726 Kbtu/unit/year	97,157,680 kbtu/year
Non-Residential Electricity	7,765,000 square feet	14.75 kWh/square foot/year	113,369,000 kWh
Non-Residential Natural Gas		12.84 cubic-feet/square foot/year	289,634,500 kbtu/year
Water Supply, Treatment, and Conveyance	Water Use (Mgal)	1928 Mgal/yr 3,500 kWh/Mgal	6,748,120 kWh/year
Wastewater Treatment	Water Use (Mgal)	1,650 Mgal/yr 1,911 kWh/Mgal	3,153,813 kWh/year
Construction Equipment	Gallons of Fuel Used	0.05 gal/hp-hr (diesel)	534,755 gallons
Construction VMT	VMT/project	VMT = 3,056,220 21.1 mpg	144,845 gallons
Transportation	VMT/Year/Project	VMT = 233,894,978 21.1 mpg	11,085,070 gallons
Notes: Btu = British Thermal Units kWh = Kilowatt Hours Mgal = Million gallon Mpg = miles per gallon Source of data for construction and VMT: CalEEMod 2016.3.2 Stanislaus County MPG for All Vehicles in 2022 – EMFAC 2017. Modeling results are provided in Appendix C.			

**Level of Significance Before Mitigation**

Less than significant impact

**Mitigation Measures**

No mitigation is required

**Level of Significance After Mitigation**

Less than significant impact.

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## Renewable Energy

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**Impact GHG-4: Buildout of the Master Plan would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

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### ***Impact Analysis***

#### *Be Inconsistent with Adopted Plans and Policies*

The City of Patterson Sustainability Plan (City of Patterson 2009), prepared in 2009, provides energy goals of and policies for the community. The Patterson Sustainability Plan sets forth specific actions to improve City's overall sustainability now and in the future. It recommends specific changes to the City's current operational and decision-making practices, as well as changes the private sector can make (voluntary or otherwise). The objective of the Plan is to preserve the unique character and quality of life in Patterson, minimize adverse environmental impacts, and promote efficient use of land, materials, energy, water, and other finite resources. The Sustainability Plan includes the following goals and policies:

1. Reduce energy use (e.g. electricity, gas) in buildings.
2. Integrate energy efficiency into standard operating procedures for government, residents, and commercial and industrial businesses.
3. Strive to meet all new demand through energy efficiency and renewable energy sources.
4. Increase the amount of on-site renewable energy projects in Patterson.

**Goal EE-1:** Incorporate sustainable building practices into the City's development regulations.

#### **Actions**

**EE-1.1:** By 2010, adopt a mandatory Green Building Ordinance for new construction and renovation.

- a. Require Build It Green's GreenPoint Rated certification for residential construction and a LEED Silver rating for healthcare facilities and commercial & industrial construction.
- b. Offer flexibility and options to the property owner in determining which materials and techniques meet their needs and desires for complying with the standards.

**EE-1.2** Encourage passive solar design (passive heating and cooling) to avoid or minimize cooling needs through building orientation of all new development.

**EE-1.3** Amend Municipal Code to allow more flexible development standards as incentives for development projects that exceed the minimum requirements for LEED or GreenPoint Rated, such as density bonuses, increased maximum building height, increased Floor Area Ratio (FAR), or a reduced on-site parking requirement.

**EE-1.4** Develop financial incentives for new construction projects that are LEED-certified. The incentive rate should increase for each additional point earned.

**EE-1.5** Preserve existing structures when feasible, and encourage adaptive reuse.

**EE-1.6** Encourage commercial & industrial businesses to install cool roofs (painted white) or green roofs (with vegetation).

**EE-1.7** Encourage the replacement of inefficient appliances with efficient ones, when there is a change in ownership (or rental).

**Goal EE-4:** Promote the development of on-site renewable energy (e.g. solar, wind, biomass, and geothermal).

**Actions**

**EE-4.1** Conduct a feasibility study to explore the possibility of installing a methane recovery system at the City's Water Quality Control Facility (WQCF), or wastewater treatment plant, to generate electricity.

**EE-4.2** Amend Municipal Code to streamline the approval of solar panels and small-scale wind turbines. Protect light access for solar energy systems.

**EE-4.3** Offer a Solar Fee Waiver for any building permit application fees related to the installation of solar panels.

**EE-4.4** Implement a Solar Roof Program under Property Assessed Clean Energy to minimize upfront costs for installing solar panels on residential and non-residential buildings. The landowner will pay an annual 'special assessment' property tax.

**EE-4.5** Encourage installation and private funding of on-site renewable energy projects in Patterson, e.g. homes; roofs and parking lot solar photovoltaic arrays in the West Patterson Business Park and in commercial centers providing a large area for solar panels, and providing shade for vehicles.

**EE-4.6** Collaborate with large landowners, including surrounding agricultural uses in Stanislaus County, to encourage installation and funding of on-site renewable energy projects.

**EE-4.7** Encourage the Stanislaus County Environmental Resources Department to install a methane recovery system at the Fink Road Landfill to generate electricity.

Many of the goals and policies of the Sustainability Plan have been accomplished through State regulations described earlier. For example, solar panels are required by 2019 Title 24, RPS standards have resulted in large scale construction of renewable energy projects to meet the RPS renewables mandate. The CalGreen Building code requires solar ready roofs, light colored roofs for industrial buildings, and mandates recycling of construction materials among others.

Through incorporation of the measures described above, for example, the project will be designed to include energy conservation measures to meet or exceed the regulatory requirements, and would comply with the applicable policies of the Sustainability Plan. The project includes non-residential uses that would employ approximately 8,670 people, helping to improve the jobs/housing balance and to reduce the commute distances for area residents. The project will comply with the most recent energy building standards consistent with applicable plans and policies and would not result in wasteful or inefficient use of nonrenewable energy sources. Therefore, impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact

**Mitigation Measures**

No mitigation measures are required

**Level of Significance After Mitigation**

Less than significant impact

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## 3.8 - Hazards and Hazardous Materials

### 3.8.1 - Introduction

This section describes the existing hazards and hazardous materials setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based, in part, on information contained within the City of Patterson General Plan, the General Plan EIR, the California State Water Resources Control Board’s GeoTracker Database, and information provided by the property owner.

### 3.8.2 - Environmental Setting

#### Hazardous Materials

Hazardous materials, as defined by the California Code of Regulations, are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials are grouped into the following four categories, based on their properties:

- Toxic—causes human health effects
- Ignitable—has the ability to burn
- Corrosive—causes severe burns or damage to materials
- Reactive—causes explosions or generates toxic gases

A hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. The criteria that define a material as hazardous also define a waste as hazardous. If improperly handled, hazardous materials and hazardous waste can result in public health hazards if released into the soil or groundwater or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer. The California Code of Regulations, Title 22, Sections 66261.20-24 contains technical descriptions of toxic characteristics that could cause soil or groundwater to be classified as hazardous waste.

#### Database Search

Table 3.8-1 summarizes all of the recorded hazardous material sites within 0.5 mile of the project site based on a GeoTracker<sup>1</sup> search conducted in 2019. As shown in the table, three sites are listed.

**Table 3.8-1: Database Search Summary**

Name	Address	Distance From Nearest Master Plan Area	Database	Summary
PRC Patterson	13331 Highway 33	1,750 feet	Clean Up Program	Active; Abandoned petroleum recycling facility. Remediation underway.
Patterson	500 N. 2 <sup>nd</sup>	2,500 feet	LUST	Closed (2004); Leaking underground

<sup>1</sup> GeoTracker includes sites listed on the Cortese List. Refer to Regulatory Framework section for discussion of the Cortese List.

Name	Address	Distance From Nearest Master Plan Area	Database	Summary
Beacon	Street			storage tank. Remediation completed.
CAL FIRE	2142 Sperry Avenue	2,100 feet	LUST	Closed (1996); Leaking underground storage tank. Remediation completed.

Notes:  
 Source: State Water Resources Control Board, 2019.

Of the three sites, two (Patterson Beacon and CAL FIRE) are listed as ‘Case Closed’ signifying that they have been remediated to the satisfaction of the regulatory agency with jurisdiction. The third site (PRC Patterson) is listed as active.

**PRC Patterson**

PRC Patterson previously supported a petroleum recycling operation 1,750 feet downgradient from the Master plan areas that was abandoned in 1996. Following abandonment, a number of above ground storage tanks, underground storage tanks, and basins were removed, and soil and groundwater testing was performed. The most recent action was in 2010. Given the distance of the Master Plan from this operation and the gradient, to the extent that any soil or groundwater contamination that may be present at this site, it would not pose a risk to the Zacharias Master Plan area.

**Radon**

Radon is a carcinogenic, radioactive gas resulting from the natural breakdown of uranium in soil, rock, and water. Radon gas enters a building through cracks in foundations and walls. Once inside the building, radon decay products may become attached to dust particles and inhaled, or the decayed radioactive particles alone may be inhaled and cause damage to lung tissue. The United States Environmental Protection Agency (EPA) has established a safe radon exposure threshold of 4 picocuries per liter of air (pCi/l).

The California Department of Health Services has conducted more than 48,000 indoor radon tests in more than 1,700 zip codes through the State, including the one zip code that represents the City of Patterson. According to the test results from the sample taken in the City of Patterson, radon levels within the area did not exceed 4.0 pCi/l. Furthermore, Stanislaus County is identified by the United States Environmental Protection Agency as Radon Zone 3, which represents areas with low potential for radon levels exceeding 2.0 pCi/L. Therefore, radon is not considered an issue of concern in the Patterson area.

**Low-Frequency Electromagnetic Fields**

Electrical transmission and distribution lines emit extremely low-frequency electromagnetic fields (EMFs), which have been suspected to be linked to cancer. However, scientific research has never conclusively established a link between EMFs and cancer. In 2007, the World Health Organization issued a report titled “Extremely Low Frequency Fields, Environmental Health Criteria Monograph No. 238” that concluded that evidence between extremely low-frequency EMFs and childhood leukemia is not strong enough to be considered causal, although it did note that the issue still was of

concern. The same report indicated that there is inadequate evidence or no evidence linking low-frequency EMFs and health effects associated with all other diseases.

According to the California Energy Commission, no major electrical transmission lines are located within either the Baldwin or the Zacharias Master Plan Areas. The nearest high voltage electrical facility to the Zacharias Master Plan is the Turlock Irrigation District substation on Rogers Road, a distance of 0.25-mile. The nearest high voltage electrical transmission line to the Baldwin Master Plan Area is a 220 kilovolt tower line located on the west side of Interstate 5, a distance of 1.68 miles.

### **3.8.3 - Regulatory Framework**

#### **Federal**

##### ***Federal Toxic Substances Control Act and Resource Conservation and Recovery Act***

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 (RCRA) regulate the generation, transportation, treatment, storage, and disposal of hazardous and non-hazardous waste. The regulatory program is administered by the EPA. It mandates that hazardous wastes be tracked from the point of generation to their ultimate fate in the environment. This includes detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. The HSWA also prohibited the use of certain techniques for the disposal of some hazardous wastes, and provided the framework for a regulatory program designed to prevent releases from USTs. The program establishes tank and leak detection standards, including spill and overflow protection devices for new tanks, and performance standards to ensure that the stored material will not corrode the tanks.

##### ***Comprehensive Environmental Response, Compensation, and Liability Act***

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. The Act was intended to be comprehensive in encompassing both the prevention of, and response to, uncontrolled hazardous substances releases. The Act deals with environmental response, providing mechanisms for reacting to emergencies and to chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

##### ***Transportation of Hazardous Materials***

The Hazardous Materials Transportation Act of 1974, as amended, is the basic statute regulating hazardous materials transportation in the United States. Transportation of hazardous materials is regulated by the U.S. Department of Transportation’s Office of Hazardous Materials Safety. The Office of Hazardous Materials Safety formulates, issues, and revises hazardous materials regulations

under the Federal Hazardous Materials Transportation Law. The hazardous materials regulations cover hazardous materials definitions and classifications, hazard communications, shipper and carrier operations, training and security requirements, and packaging and container specifications. The hazardous materials transportation regulations are codified in 49 Code of Federal Regulations Parts 100-185.

The hazardous materials transportation regulations require carriers transporting hazardous materials to receive training in the handling and transportation of hazardous materials. Training requirements include pre-trip safety inspections, use of vehicle controls and equipment including emergency equipment, procedures for safe operation of the transport vehicle, training on the properties of the hazardous material being transported, and loading and unloading procedures. All drivers must possess a commercial driver's license as required by 49 Code of Federal Regulations Part 383. Vehicles transporting hazardous materials must be properly placarded. In addition, the carrier is responsible for the safe unloading of hazardous materials at the site, and operators must follow specific procedures during unloading to minimize the potential for an accidental release of hazardous materials.

## **State**

### ***Cortese List***

The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List." The list, or a site's presence on the list, has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA). While Government Code Section 65962.5 makes reference to the preparation of a 'list,' many changes have occurred related to web-based information access since 1992 and this information is now largely available on the websites of GeoTracker and EnviroStor. Those requesting a copy of the Cortese "list" are now referred directly to the appropriate information resources contained on the Internet web sites (e.g., GeoTracker and EnviroStor).

### ***Handling and Storage of Hazardous Waste***

The handling and storage of hazardous materials is regulated on the federal level by the EPA under the CERCLA as amended by the Superfund Amendments and Reauthorization Act (SARA). Under SARA Title III, a nationwide emergency planning and response program was established that imposed reporting requirements for businesses that store, handle, or produce significant quantities of hazardous or acutely toxic substances as defined under federal laws. SARA Title III required each state to implement a comprehensive system to inform federal authorities, local agencies, and the public when a significant quantity of hazardous, acutely toxic substances are stored or handled at a facility.

In California, the handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500-25543.3, facilities handling hazardous materials are required to prepare a Hazardous Materials Business Plan. The business plan provides information to the local emergency response agency regarding the types and quantities of hazardous materials stored at a facility and provides detailed emergency planning and response procedures in the event of a hazardous materials release. In the event that a facility stores quantities of specific

acutely hazardous materials above the thresholds set forth by the California code, facilities are required to prepare a Risk Management Plan and California Accidental Release Plan, which provide information on the potential impact zone of a worst-case release, and requires plans and programs designed to minimize the probability of a release and mitigate potential impacts.

### **California Hazardous Waste Control Law**

The California Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the EPA approves the California program, both the state and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

The California Code of Regulations, Title 22, Chapter 11, Article 2, Section 66261.10 defines hazardous waste as a substance that may:

- (1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed or otherwise managed.

According to California Code of Regulations Title 22, substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes are hazardous substances that no longer have a practical use, such as material that has been abandoned, discarded, spilled, or contaminated or is being stored prior to proper disposal.

Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability or death. For example, toxic substances can cause eye or skin irritation, disorientation, headache, nausea, allergic reactions, acute poisoning, chronic illness, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a carcinogenic component of gasoline). Ignitable substances are hazardous because of their flammable properties. Gasoline, hexane, and natural gas are examples of ignitable substances. Corrosive substances are chemically active and can damage other materials or cause severe burns upon contact. Examples include strong acids and bases such as sulfuric (battery) acid or lye. Reactive substances may cause explosions or generate gases or fumes. Explosives, pressurized canisters, and pure sodium metal (which reacts violently with water) are examples of reactive materials.

Other types of hazardous materials include radioactive and biohazardous materials. Radioactive materials and wastes contain radioisotopes, which are atoms with unstable nuclei that emit ionizing radiation to increase their stability. Radioactive waste mixed with chemical hazardous waste is referred to as “mixed wastes.” Biohazardous materials and wastes include anything derived from living organisms. They may be contaminated with disease-causing agents, such as bacteria or viruses.

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan that must include details, including floor plans, of the facility and business conducted at the site, an inventory of hazardous materials that are handled or stored on the site, an emergency response plan, a training program in safety procedures and emergency response for new employees, and an annual refresher course in the same topics for all employees.

The Porter-Cologne Water Quality Act (California Water Code, Section 13000, et seq.) established the authority of the State Water Resources Control Board (State Water Board) and provided the Regional Water Quality Control Board (RWQCB) with the primary responsibility of the protection of water quality in the State of California.

### ***Hazardous Materials Worker Safety***

The California Occupational Safety and Health Administration (Cal-OSHA) and the Federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety by developing and enforcing workplace safety regulations in the handling and use of chemicals in the workplace. Cal-OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR §§ 337-340, Chapter 3.2). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

### ***California Fire Code***

California Code of Regulations, Title 24, also known as the California Building Standards Code, contains the California Fire Code (CFC) at Part 9. The CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution.

### ***California Department of Transportation (Caltrans) and California Highway Patrol***

The California Vehicle Code Section 31303 requires that hazardous materials be transported via routes with the least overall travel time, and prohibits the transportation of hazardous materials through residential neighborhoods. In California, the California Highway Patrol (CHP) is authorized to designate and enforce route restrictions for the transportation of hazardous materials. To operate in California, all hazardous waste transporters must be registered with the DTSC. Unless specifically exempted, hazardous waste transporters must comply with the California Highway Patrol Regulations, the California State Fire Marshal Regulations, and the United States Department of Transportation Regulations. In addition, hazardous waste transporters must comply with Division 20, Chapter 6.5, Article 6 and 13 of the California Health and Safety Code, and the Title 22, Division 4.5, Chapter 13 of the California Code of Regulations, both of which are administered by the DTSC.

### ***Central Valley Regional Water Quality Control Board***

There are nine Regional Water Quality Control Boards (RWQCBs) throughout the State. The Central Valley RWQCB has jurisdiction over the City of Patterson. Individual RWQCBs function as the lead

agencies responsible for identifying, monitoring, and cleaning up LUSTs. Storage of hazardous materials in USTs is regulated by the State Water Board, which oversees the nine RWQCBs.

## Local

The City of Patterson General Plan, Health and Safety Element identifies potential natural and human-made hazards to Patterson residents, including seismic events, flooding, fires, and the unhealthful effects of noise, and provides policies, programs and standards to protect people from such hazards. Goals and policies with relation to hazards and hazardous materials include the following:

### Goals:

**HS-4:** To ensure that City emergency response procedures are adequate in the event of natural or human-made disasters.

**HS-7:** To protect the health and safety of Patterson residents from the harmful effects of the use, transport and disposal of hazardous substances.

### Policies

**HS-4.1:** Emergency Response Plan. The City shall maintain, periodically update, and test the effectiveness of its Emergency Response Plan. As part of the periodic update, the City shall review county and state emergency response plans and procedures to ensure coordination with the City's plan.

**HS-4.2:** Emergency Access Routes. The City shall identify emergency access routes and shall ensure that they are kept free of traffic impediments. Emergency access and evacuation routes shall be maintained for areas east and west of the railroad right-of-way.

**HS-4.3:** Water sources for firefighting. The City shall identify alternative water sources for firefighting purposes for use during a disaster.

**HS-4.4:** Siting of emergency facilities. Critical emergency response facilities such as hospitals, fire, police, emergency service facilities, and utilities shall be sited to minimize their exposure to flooding, seismic effects, fire, or explosion, and to ensure the protection of areas on either side of the railroad right-of-way.

**HS-4.5:** Command center for emergencies. The City shall designate and develop a command center for use during times of emergency.

**HS-4.6:** Mutual aid. The city shall maintain mutual aid agreements and communications links with surrounding jurisdictions for assistance during times of emergency.

**HS-4.7:** Secondary access over San Joaquin River. The City shall work with the Stanislaus Council of Governments (StanCOG) and other applicable agencies to establish a secondary emergency access across the San Joaquin River.

**HS-7.1:** Coordination. The City shall coordinate with the California Highway Patrol, the Stanislaus County Department of Environmental Health Services, the County Sheriff's Department, and all other appropriate local, state and federal agencies in hazardous materials route planning, notifications and incident response, to ensure appropriate first response to hazardous material incidents.

**HS-7.2** Avoidance. The City shall seek to avoid and minimize exposure of sensitive land uses to potentially hazardous emissions along truck routes and rail lines which may be used by surface vehicles and rail cars carrying hazardous or toxic substances. These truck routes include Interstate 5, State Highway 33, and Las Palmas Avenue. Rail corridors include the two primary lines running north-south through Patterson.

**HS-7.3** Management of hazardous materials. The City shall regulate the storage of hazardous and waste materials consistent with state and federal law. The City shall not permit above ground tanks without considering the potential hazards that would result from the release of stored liquids caused by possible rupture or collapse and may request applicants to have an emergency response plan.

**HS-7.4** Industrial facilities. The City shall work with responsible agencies to ensure that all industrial facilities are constructed and operated in accordance with the most current safety and environmental protection standards.

**HS-7.5** Storage. Industries that store and process significant quantities of hazardous or toxic materials shall provide a buffer zone between the installation that houses such substances and the property boundaries of the facility sufficient to protect the public in the event of the release or leak of the materials.

**HS-7.6** Remediation. The City shall work with other responsible agencies on efforts to clean up or contain identified soil or water contamination in the city limits.

**HS-7.7** Written confirmation of remediation. The City shall require written confirmation from applicable local, regional, state, and federal agencies that known contaminated sites have been deemed remediated to a level appropriate for land uses proposed prior to the City approving site development or provide an approved remediation plan that demonstrates how contamination will be remediated prior to site occupancy. This documentation shall specify the extent of development allowed on the remediated site as well as any special conditions and/or restrictions on future land uses.

### 3.8.4 - Methodology

FirstCarbon Solutions evaluated potential impacts on hazards and hazardous materials through review of the General Plan, the General Plan EIR, the California State Water Resources Control Board's GeoTracker database, and information provided by the property owners.

### 3.8.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, hazards and hazardous materials impacts resulting from the implementation of the proposed project would be considered significant if the project would:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working the project area? (Refer to Section 7, Effects Found Not To Be Significant)
- f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- g) 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? (Refer to Section 7, Effects Found Not To Be Significant)

### 3.8.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the project and provides mitigation measures where appropriate.

#### Routine Transport, Use, or Disposal of Hazardous Materials / Risk of Upset

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**Impact HAZ-1:**      **Buildout of the Master Plans would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.**

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#### **Impact Analysis**

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.765 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

## **Zacharias and Baldwin Master Plans**

### *Construction*

The two Master Plan Areas are currently developed with agricultural land. Small quantities of potentially hazardous materials and substances would be expected to be present during construction. However, based on the duration of construction, the presence of regulatory oversight, and the overall nature of construction, the use of significant quantities of hazardous materials is not expected and would not represent a significant environmental or public hazard.

### *Operation*

The Master Plan's residential, mixed use, school, and park uses would not involve the use of large quantities of hazardous materials. The Zacharias Master Plan's industrial uses would be expected to be similar to those that currently existing in the West Patterson Business Park, which are mostly distribution and logistics. These facilities receive and ship merchandise; they do not engage in manufacturing or processing; thus, they are not large quantity users of hazardous materials. To the extent that an industrial use that involves the routine use of large quantities of hazardous materials were to locate within the Zacharias Master Plan, it would be subject to state and local requirements including, but not limited to, secondary containment, regular inspection, and worker training. Impacts would be less than significant.

### **Level of Significance Before Mitigation**

Less than significant impact.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Less than significant impact.

## **Exposure of Schools to Hazardous Materials**

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<b>Impact HAZ-2:</b>	<b>Buildout of the Master Plans would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.</b>
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### **Impact Analysis**

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.765 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

### **Baldwin Master Plan Area**

There are no existing or planned schools within the Baldwin Master Plan area or within 0.25 mile of the plan area. This condition precludes the possibility of impacts in this regard.

### **Zacharias Master Plan Area**

The proposed project includes the development of an elementary and middle school within the Zacharias Master Plan Area. Additionally, Patterson Unified School District has acquired land to develop a high school at the northwest quadrant of the Baldwin Road / Zacharias Road intersection just outside the Master Plan boundaries.

The middle school would be developed on the west side of Baldwin Road and may be within 0.25 mile of the planned industrial uses along Rogers Road or the existing Keystone Pacific Business Park to the south. Distribution centers are the closest uses within the Keystone Pacific Business Park that may be within 0.25 mile of the school. These facilities receive and ship merchandise; they do not engage in manufacturing or processing; thus, they are not large quantity users of hazardous materials. As such, the middle school would not be exposed to hazardous materials.

The elementary school would be developed on the east side of Baldwin Road and may be within 0.25 mile of the planned mixed uses. The closest types of mixed commercial uses would be restaurants, small retail, and services, which would not be large quantity users of hazardous materials. As such, the elementary school would not be exposed to hazardous materials.

The Master Plan does not propose any land uses within 0.25-mile of the high school site that would handle large quantities of hazardous materials or emit substantial hazardous air emissions.

Therefore, impacts associated with the potential exposure of schools to hazardous materials would be less than significant.

### **Level of Significance Before Mitigation**

Less than significant impact.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Less than significant impact.

### **Government Code Section 65962.5 Sites**

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<b>Impact HAZ-3:</b>	<b>Buildout of the Master Plans would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.</b>
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### **Impact Analysis**

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.765 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

## **Zacharias and Baldwin Master Plans**

### *Cortese List*

Neither the Zacharias nor Baldwin Master Plan areas are listed on the Cortese List, which includes various hazardous materials databases compiled to Government Code 65962.5.

In terms of surrounding sites, PRC Patterson is listed on the Cortese List. The site is 1,750 feet from the Zacharias Master Plan area and is down gradient. As such, to the extent that any soil or groundwater contamination that may be present at this site, it would not pose a risk to either of the Master Plan areas.

### *Agricultural Chemicals*

The majority of the Master Plan areas have been in cultivated agricultural production for decades. Such activities typically involve application of agricultural chemicals including herbicides and pesticides. Following application, residual concentrations of these chemicals will remain in upper soil layers. Accordingly, Mitigation Measure (MM) HAZ-3a requires the applicant to conduct soil testing for agricultural chemicals and, if detected above acceptable levels, to remediate the property in accordance with best management practices.

### *Hazardous Building Materials*

Both Master Plan areas contain structures that appear to predate the Federal bans on asbestos and lead based paint. Additionally, these structures may contain mercury and polychlorinated biphenyls. As such, the demolition of these structures may expose human health or the environment to hazardous building materials. Accordingly, MM HAZ-3b requires the project applicant to retain a certified hazardous waste contractor to properly remove and dispose of all materials containing asbestos, lead, mercury, and polychlorinated biphenyls prior to demolition.

### *Electromagnetic Fields*

The nearest high voltage electrical facility to the Zacharias Master Plan is the Turlock Irrigation District substation on Rogers Road, a distance of 0.25-mile. The nearest high voltage electrical transmission line to the Baldwin Master Plan Area is a 220 kilovolt tower line located on the west side of Interstate 5, a distance of 1.68 miles. Of these facilities, the Rogers Road facility is of greatest concern; the tower line is too far from the Baldwin Master Plan area to expose to low-frequency EMFs.

Power lines (and by extension substations) emit low-frequency EMFs that range from 1 to 80 milligauss directly under or next to them. This EMF range is similar to that of clothes washers, electric ranges, compact fluorescent light bulbs, and a liquid crystal display/plasma television. Because the Rogers Road substation is 0.25-mile away from the Zacharias Master Plan area, the exposure level would be even less. Thus, impacts would be less than significant.

### **Level of Significance Before Mitigation**

Potentially significant impact.

### **Mitigation Measures**

**MM HAZ-3a** Prior to issuance of grading permits for any portion of the project site where pesticides or other agricultural chemicals have been applied within the past 5 years, the project applicant shall retain a qualified consultant to perform soil testing for residual concentrations of agricultural chemicals. Soils shall be laboratory tested in accordance with California Department of Toxic Substances Control (DTSC) Guidelines. If the testing finds concentrations in excess of acceptable limits, the project applicant shall retain a qualified contractor to conduct remediation activities, which may include treatment or removal. The soil remediation activities shall be completed prior to grading.

**MM HAZ-3b** Prior to issuance of demolition permits for any structures, the project applicant shall retain a certified hazardous waste contractor to properly remove and dispose of all materials containing asbestos, lead, mercury, and polychlorinated biphenyls. Upon completion, the applicant shall submit documentation to the City of Patterson verifying such activities have been completed.

### **Level of Significance After Mitigation**

Less than significant impact with mitigation incorporated.

### **Emergency Response and Evacuation**

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**Impact HAZ-4:** **Buildout of the Master Plans would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

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### **Impact Analysis**

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.765 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

#### **Baldwin Master Plan Area**

The Baldwin Master Plan contemplates a looped internal circulation network that would connect to existing segments of the City of Paterson's roadway network at Baldwin Road and the City of Patterson Corporation Yard access road. Thus, two points of connection would be provided. Moreover, the Master Plan incorporates the General Plan Circulation Element's roadway sections and, thus, the internal roadways would meet City standards for access and circulation. As such, adequate emergency response and evacuation would be provided.

#### **Zacharias Master Plan Area**

The Zacharias Master Plan contemplates an internal circulation network with multiple connections to the City of Paterson's roadway network at Rogers Road, Zacharias Road, Baldwin Road, and Ward Avenue. The Zacharias Master Plan also contemplates an East-West Connector that would link the Master Plan area to State Route 33. Additionally, two Emergency Vehicle Access (EVA) points would be provided at the existing Ivy Avenue and Rose Avenue cul-de-sacs. Moreover, the Master Plan

incorporates the General Plan Circulation Element's roadway sections and, thus, the internal roadways would meet City standards for access and circulation. As such, adequate emergency response and evacuation would be provided.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

None required.

***Level of Significance After Mitigation***

Less than significant impact.

## 3.9 - Hydrology and Water Quality

### 3.9.1 - Introduction

This section describes the existing hydrology and water quality setting, and potential effects from the Zacharias and Baldwin Master Plan Projects (project) implementation on the project site and its surrounding area. Individual planning areas are highlighted where needed, otherwise the discussions in this chapter pertain to both the Zacharias and Baldwin planning areas. Balance Hydrologics assessed the potential for flooding in the Zacharias Master Plan area. An accompanying Technical Memo is provided in Appendix H. Additional information was provided by the City of Patterson, Federal Emergency Management Agency, the Central Valley Regional Water Quality Control Board, California Department of Water Resources, and National Oceanic and Atmospheric Administration.

### 3.9.2 - Environmental Setting

Regional climate can be characterized as a semi-arid Mediterranean climate, with cooler winters and hotter summers typical of the transition zone from the coastal mountains to the San Joaquin Valley. Monthly temperatures in the winter range from lows of mid-30° F to highs of low-60° F, and in the summer range from lows of mid-50° F to highs of mid-90° F. The project site receives approximately 11.5 inches of rain per year (Table 3.9-1). Modest rainfall totals can be attributed to the general climate as well as to a rain shadow effect of the California Coast Diablo Range to the west.

Average monthly precipitation, temperature, and reference evapotranspiration (ETo) for the period are shown in Table 3.9-1. Precipitation exceeds ETo only in the winter month of January and the two are approximately in equilibrium in December and February. ETo exceeds precipitation on a yearly basis at a 5:1 ratio, with the largest deficits in summer months with high temperatures and incidental amounts of rain.

**Table 3.9-1: Average Monthly Precipitation, Temperature and Reference ETo**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precipitation (in)	2.55	2.18	2.00	0.63	0.39	0.04	0.02	0.02	0.27	0.61	1.23	1.51	11.45
Temperature (F°)	45.6	50.9	54.8	59.8	66.8	73.2	77.1	75.8	72.3	64.5	53.0	45.3	61.6
Max Temp (F°)	54.2	61.8	67.0	74.5	82.7	90.5	94.6	92.6	88.6	79.8	65.1	55.1	75.5
Min Temp (F°)	37.0	40.0	42.6	45.1	50.8	55.9	59.6	58.9	55.9	49.2	40.9	35.5	47.6
ETo (in)	1.55	2.24	3.72	5.10	6.82	7.80	8.68	7.75	5.70	4.03	2.10	1.55	57.04

**Notes:**

Precipitation and temperature period of record was 1971-2010, ETo map was created in 1999.

Sources: Western Regional Climate Center, 2019; California Department of Water Resources, 1999.

### **Master Plan Area**

The Baldwin and Zacharias and Baldwin Master Plan areas are predominately used for agricultural production and contain no stormwater drainage infrastructure. Rural residential land is located in the eastern portion of the Zacharias planning area. No formal storm drainage facilities are located

within the project areas (e.g., storm drain inlets, buried piping). Under existing conditions, runoff either ponds on-site and infiltrates into the local aquifer or flows into ditches or swales that convey to city streets that drain to Salado Creek. The Zacharias project area slopes gently away from Del Puerto Creek and is over one-half mile from the creek, thus runoff flows away from the creek rather than toward it. Storm drainage facilities are expected to be built out as development of these areas moves forward per the City of Patterson Draft Water Master Plan (WMP).

### ***Surface Hydrology***

The Patterson area features a network of natural streams and rivers, whereas predominately man-made surface water elements include canals and ditches that are used for water supplies and agricultural irrigation. The following is a description of the principal surface water bodies local to the Patterson area.

#### ***San Joaquin River***

Patterson is located within the San Joaquin River watershed. The San Joaquin River is the second-longest river in California, extending 300 miles from the Sierra Nevada Mountains to the San Joaquin Delta. The river and its tributaries drain a watershed encompassing approximately 32,000 square miles. In the Patterson area, the river is located approximately 2 miles east of the City and drains from south to north.

#### ***Del Puerto Creek***

Del Puerto Creek is the principal natural waterway on the north side of the City of Patterson with a contributing watershed area of 72.6 square miles. The waterway is an intermittent stream with natural flows during the rainy season. Water flowing through the creek channel in the dry season comes from irrigation runoff (agricultural) or potentially seepage from irrigation ditches and/or aqueducts. The creek originates in Del Puerto Canyon in the Diablo Range west of Patterson, enters the area from the west through culverts under Interstate 5, the California Aqueduct, and the Delta-Mendota Canal, and then meanders northeastward before discharging into the San Joaquin River approximately 4.75 miles north of the City limits. Although there is no official watershed delineation of Del Puerto Creek on the alluvial plain east of Interstate 5 other than along the channel itself (Exhibit 3.9-1), Federal Emergency Management Agency (FEMA) flood mapping indicates that overbank flood flows have the potential to move water into and through the project area (see “Flood Hazard Mapping” section for further information). The Zacharias planning area overlaps with the FEMA flood zone described above as the alluvial plain slopes southeastward, away from Del Puerto Creek. The City of Patterson General Plan indicates that Del Puerto Creek and its associated overbank alluvial plain are subject to flooding during major storm events.

#### ***Salado Creek***

Salado Creek is the principal natural waterway that runs through the urbanized portions of the City of Patterson with a contribution watershed area of 25.3 square miles. The creek is an intermittent stream originating in the Diablo Range west of Patterson with natural flows during the rainy season. Water flowing through the creek channel in the dry season comes from irrigation runoff (agricultural or urban) or potentially seepage from irrigation ditches and/or aqueducts. The creek is channelized before it enters Patterson from the south, remains channelized through the City, and ultimately

discharges into the San Joaquin River to the east. Urban discharge primarily originating from irrigation of lawns and parks can be found in the channel running through the City throughout the year. In the late 1990s, flood control improvements were made to Salado Creek, including enlarging the channel within the city limits and installing a 96-inch-diameter pipeline under Olive Avenue that runs from the railroad tracks at State Route 33 to the San Joaquin River. The Baldwin planning area is within the Salado Creek watershed, located about 2,000 feet west of the creek channel as it approaches the City boundary. The channelized creek within the City is piped along the boundary of the Zacharias planning area from east of Cliff Shallow Drive to Ward Avenue.

### ***Delta Mendota Canal***

The Delta-Mendota Canal is a 117-mile-long channel that is part of the Central Valley Water Project, a joint federal and state water project that spans the length of the San Joaquin Valley and provides water for agricultural, urban, and wildlife use. The canal conveys water from the Tracy Pumping Plant near Tracy to the Mendota Pool in Fresno County. In the Patterson area, the canal meanders through the west side of the City, approximately parallel to the east side of Interstate 5. No portion of this project is intersected by the Delta-Mendota Canal.

### ***California Aqueduct***

The California Aqueduct is a 444-mile-long conveyance channel that is part of the State Water Project, a state-built and -operated water storage and delivery system that provides water to 29 urban and agricultural water suppliers throughout California. The aqueduct conveys water from the Banks Pumping Plant near Tracy to a point south of the Tehachapi Mountains. In the Patterson area, the aqueduct runs between the east side of Interstate 5 and the Delta-Mendota Canal. No portion of this project is intersected by the California Aqueduct.

### ***Irrigation Ditches***

Irrigation ditches have been built throughout the alluvial plain east of the Diablo Range foothills. This area is prime agricultural land that depends on the regular delivery of water to fields, including existing agricultural fields in the project area. The ditches run parallel to the San Joaquin River and the gentle slope of the alluvial plain and generally perpendicular to the creeks. The Patterson Irrigation District was formed in 1955 to manage water delivery to agricultural lands (Patterson Irrigation District Water Management Plan 2016) in the Patterson area. Water allocations in 2010, the most recent year with data, came from Federal agricultural water via the Delta-Mendota Canal (approximately 6%), from local San Joaquin River surface water (approximately 82 percent), and from District groundwater (approximately 12 percent).

## **Surface Water Quality**

Del Puerto Creek, Salsado Creek, and the San Joaquin River are listed on the U.S. Environmental Protection Agency (EPA) 303(d) list of impaired water bodies and associated pollutants, as administered by the Central Valley Regional Water Quality Control Board (RWQCB). Listings in the current 303(d) (Central Valley RWQCB 2016) are defined as those water bodies that do not meet, or are not expected to meet, water quality standards for a specified pollutant. For water bodies identified as impaired, the State is required to develop a Total Maximum Daily Load (TMDL) to account for all sources of pollutants from both point and nonpoint sources that are attributed to its

listing and which defines concentration limitations on discharge of a pollutant or stressor into the waterway over a defined time period.

Table 3.9-2 lists all 303(d) pollutants that require a TMDL in local water bodies. A TMDL for chlorpyrifos was in effect as of 2006 for the San Joaquin River. All other pollutants listed below require, but do not yet have, an approved TMDL.

**Table 3.9-2: Impaired Water Bodies and Pollutants**

Water Body	Pollutant Category	303(d) List Pollutant	TMDL expected date
Del Puerto Creek	Fecal Indicator Bacteria	Fecal bacteria	Unknown
	Pesticides	Dieldrin, Bifenthrin, Cyfluthrin, Cyhalothrin Lamda, Esfenvalerate, Fenvalerate, Pyrethroids	Unknown
	Nutrients	Nitrate/Nitrite (Nitrite + Nitrate as N)	Unknown
	Salinity	Total Dissolved Solids, Salinity	Unknown
	Toxicity	Toxicity	Unknown
	Miscellaneous	pH (high)	Unknown
Salado Creek	Fecal Indicator Bacteria	Fecal Bacteria	Unknown
	Salinity	Salinity	Unknown
San Joaquin River	Pesticides	DDT (Dichlorodiphenyltrichloroethane), Group A Pesticides, DDE (Dichlorodiphenyldichloroethylene)	Unknown
	Pesticides	Chlorpyrifos, Diazinon	Approved, 12/20/2006
	Salinity	Electrical Conductivity, Specific Conductivity, Total Dissolved Solids	Unknown
	Toxicity	Toxicity	Unknown
	Miscellaneous	Temperature, water	Unknown
	Other Organics	Alpha-BHC (Benzenehexachloride or alpha-HCH)	Unknown
	Metals/Metalloids	Mercury	Unknown
Notes: TMDLs required, with expected dates unknown Sources: Central Valley Regional Water Quality Control Board, 2014 and 2019.			

## **Flood Hazard Mapping**

The FEMA Flood Insurance Rate Map (FIRM) associated with the Flood Insurance Study (FIS 06099CV000A) that contains the Zacharias planning area indicates that some portions of the project lie within Del Puerto Creek Zone AO (Exhibit 3.9-2), which is a flood hazard area predicted to have flood depths of 1 to 3 feet (generally sheet flow on sloping terrain) in a 100-year flood event (1 percent annual chance flood hazard)

The FEMA FIRM that contains the Baldwin planning area (also FIS 06099CV000A) indicates that a minor portion of the eastern edge of the project lies along the western edge of Salado Creek shaded Zone X area (Exhibit 3.9-3), which is a flood hazard area predicted to have flood depth of less than 1 foot in a 500-year flood event (0.2 percent annual chance flood hazard).

## **Groundwater**

The City of Patterson overlies the Delta-Mendota Groundwater Subbasin (5-022.07; Delta-Mendota Subbasin), which covers 1,170 square miles in western Fresno, Madera, Merced, and Stanislaus counties and is a subbasin of the San Joaquin Valley Groundwater Basin. A summary of hydrogeologic characteristics of the Delta-Mendota Subbasin as reported in California Department of Water Resources (DWR) Bulletin 118 is detailed as follows.

### ***Hydrogeologic Formations***

The primary groundwater-bearing units of the Delta-Mendota Subbasin consist of unconsolidated terrace, alluvium, and flood-basin deposits of alternating beds of clay, sand, and gravel in the Tulare Formation geologic unit, which includes the alluvial fan materials of Del Puerto Creek and Salado Creek. The relatively large grain size of the upslope alluvial fan deposits suggests their value as possible recharge sites, whereas the downslope Corcoran Clay layers define the confining units important to the Delta-Mendota Subbasin aquifers.

The Delta-Mendota Subbasin near Patterson contains two primary aquifers separated by the Corcoran Clay confining unit: a lower fully-confined water-bearing zone (“lower aquifer”) and an upper semi-confined zone (“upper aquifer”). The Corcoran Clay unit is present under the City of Patterson and thins out to the west as the Del Puerto Creek alluvial fan rises toward the base of the Coast Range near Interstate 5 and the Delta-Mendota Canal. The lower aquifer can range below ground surface to about two-thousand feet deep. The upper aquifer extends to depths ranging from about 150 feet to greater than 350 feet below ground surface. The lower aquifer is utilized as a source of groundwater for drinking water and other uses such as agricultural irrigation, whereas upper aquifer groundwater is of lower quality. While the upper aquifer water is considered non-potable, it is used for agricultural irrigation.

### ***Local Hydrogeological Studies***

Kenneth D. Schmidt and Associates (KSA) conducted a series of hydrogeological studies in the Patterson area over the past 20 years. In the most recent studies, KSA drilled new borings and performed well tests along the Del Puerto Creek alluvial fan in 2017 to assess the best site conditions for potential recharge basins that could recharge the lower aquifer recharge. This study confirmed

previous KSA work that the confining Corcoran Clay layer thins out to the west near the Delta-Mendota Canal and the California Aqueduct.

### **Groundwater Level Trends**

Within the area of the Delta-Mendota North-Central Groundwater Sustainability Plan (GSP), the long-term trends for both the upper and lower aquifers indicate similar levels of fluctuations over time; groundwater elevations typically increased or remained relatively stable during the period from the 1980s through the early 2000s. Wells in the lower aquifer generally exhibited fewer seasonal differences in groundwater elevations, with a general decline during the 2012-2016 drought years followed by recovery in 2017-2018.

Based on wells monitored, maintained and measured by DWR and cooperators, groundwater elevations in upper aquifer wells were generally stable ( $\pm 10$  feet) between 2005 and 2010. The Groundwater Information Center's interactive map showed that depth-to-groundwater remained steady in the upper aquifer from 2012 to 2018, in the range of 80- to 100-feet below ground surface in the proposed Zacharias project area.

A pattern of increased drought-driven groundwater pumping, accompanied by declining groundwater elevations, followed by recovery is a predominant factor to be considered in the sustainable management of both aquifers in the Delta-Mendota Subbasin.

### **Groundwater Recharge**

Most of the natural recharge to the lower aquifer of the Delta-Mendota Subbasin near Patterson occurs from runoff and infiltration in the alluvial fans from the Coast Range streams along the western side of the basin. Rainfall, creek and overland runoff and irrigation water percolation recharge the upper aquifer.

Natural inflows to the upper and lower aquifers in the Patterson area were estimated by KSA and reported in the City's Water Master Plan to be 3,500 acre-feet per year (AFY) in the upper aquifer and 8,900 AFY in the lower aquifer, based on basin hydraulic conductivity, transmissivity, and gradients. Additional seepage from irrigation canals, percolation of irrigation water, and stream flow percolation likely contribute additional recharge into the upper aquifer.

The WMP identifies the area between the Delta-Mendota Canal and the California Aqueduct as potentially most amenable to development of percolation ponds as a means to recharge the lower aquifer, with the intent of implementing a pilot recharge project to determine specific recharge capacity. Specifically, subsurface geologic conditions, investigated via well boring logs beneath the Del Puerto Creek alluvial fan near the Delta-Mendota Canal suggest favorable conditions for intentional lower aquifer recharge, whereas to the east along Zacharias Road conditions are not as favorable.

### **Groundwater Storage**

Annual changes in groundwater storage for both the upper and lower aquifers in the Northern and Central Delta-Mendota Region were generated through the development of recent water year (WY) budgets to estimate annual and cumulative change in storage relative to the start of the historic

water budget period in WY2003 (GSP 2019). Cumulative change in storage from WY2003 through WY2013 were derived from available hydrograph data, whereas cumulative change in storage from WY2014 through WY2018 were estimated based on the average change in storage by water year type (wet, average, dry, and Shasta critical) as correlated between WY2003 to WY2013. Both aquifers followed the same trend: changes in storage were negative for the same 12 out of the 16 years of study, and negative for same four out of the eight wet and average water year types. Despite periods of wet conditions where recharge outpaced extractions, an overall declining trend in groundwater storage was observed in both the upper and lower aquifers. Between WY2003 and WY2018, groundwater storage declined more rapidly in the upper aquifer at 830,000 acre-feet (AF) compared to the lower aquifer at 160,000 AF.

### **Groundwater Quality**

Groundwater in the Delta-Mendota Subbasin is characterized by mixed sulfate to bicarbonate types in the northern and central portion with areas of sodium-chloride- and sodium sulfate-rich waters in the central and southern portion. Shallow, saline groundwater occurs within about 10 feet of the ground surface over a large portion of the Delta-Mendota Subbasin with localized areas of high concentrations of iron, fluoride, nitrate, and boron; the primary constituents of concern are nitrates, total dissolved solids (TDS) and pesticides.

Groundwater in shallower aquifers, such as that above the Corcoran Clay within the City of Patterson, generally contain higher concentrations of anthropogenic contaminants than in deeper aquifers, indicating pollutants from current land use activities. Reported chemical contaminants that may affect groundwater in the San Joaquin Valley Region include salinity (evaporation and poor drainage); boron and chloride (evaporation); nitrate (fertilizer); agricultural pesticides and herbicides; volatile organic compounds (industrial solvents, petrochemicals); and naturally occurring arsenic, gross alpha, and uranium. In the City of Patterson, two production wells supply water from the upper aquifer. These withdrawals can exceed total dissolved solids (salinity) maximum contaminant level (MCL) as well as nitrate and chloride MCL standards and thus are used exclusively for outdoor irrigation and other non-potable uses.

### **City of Patterson Municipal Water Supply**

The City supplies citizens and businesses with potable water from seven production wells screened in the lower aquifer, which requires only disinfection prior to distribution. Water quality in the lower aquifer is generally suitable for potable use, however there are some instances of high TDS and Chrome 6 levels. Hexavalent chromium (chromium 6) was detected above the MCL of 10 micrograms per liter in the City supply when testing for a stricter standard was ordered in 2014 by the State Water Resources Control Board, Division of Drinking Water. The City proposed a Corrective Action Plan in 2015 that included moving well screen depths to portions of the aquifer that potentially contain lower chromium 6 levels. However, in 2017, the chromium 6 MCL was withdrawn as stipulated by a court order so changes to screen depths were not implemented. A new standard has not yet been established; however, the Chrome 6 levels would not be in compliance if the 2014 standard was re-imposed. The City's most recent Consumer Confidence Report indicates that there were no sampled constituent exceedances of State or Federal MCL standards in the lower aquifer.

Annual pump capacity of the seven potable wells is 6,620 AFY, with 3.5 million gallons of storage tank capacity (WMP, 2018). Total potable water demand in 2018 was 3,102 AFY. Due to implementation of an effective water conservation program, 2018 water demand was about 16 percent lower than 2013 water demand as reported in the WMP. Future potable water demand for the year 2040 was estimated to be 9,642 AFY, taking into account the proposed project and the City's planned conservation efforts at the time the WMP and UWMP (2016) were developed. The City's UWMP reports a baseline (current) water use rate of 135 gallons per capita per day (GPCD) versus the 2020 target water use rate of 164 GPCD. More recent data were not available, though the UWMP reported that the City expected to be in compliance in 2020 based on current usage and conservation patterns.

### 3.9.3 - Regulatory Framework

#### Federal

##### *Clean Water Act*

Section 303 of the Clean Water Act requires states to adopt water quality standards for all surface waters of the United States. Water quality standards may be numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. See a description of the California State Porter-Cologne Water Quality Control Act, below, for California's implementation framework. Standards are based on the designated beneficial use(s) of the water body. Where multiple uses exist, water quality standards must protect the most sensitive use.

##### *National Pollutant Discharge Elimination System*

###### *Construction*

Section 402 of the Clean Water Act mandates that certain types of construction activity comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater program. In California, permitting occurs under the statewide General Permit for Stormwater Discharges Associated with Construction Activity ("Construction Permit"), issued through the State Water Resources Control Board (State Water Board) and implemented and enforced by nine Regional Water Quality Control Boards (RWQCBs). The project site is within the boundaries of the Central Valley RWQCB.

The NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ) – Order 2012-0006-DWQ became effective on July 12, 2012 and covers construction projects that disturb one (1) or more acres or are part of a larger common plan of development that disturbs more than 1 acre in total (e.g., large linear utility projects). The Order requires that construction activities that disturb land equal to or greater than 1 acre be permitted under the NPDES program, and that a Waste Discharge Identification Number must be on file with the City, before any work begins. A project must also submit a Notice of Intent to the State Water Board prior to the beginning of construction. Once the Construction Permit is issued, it requires permittees to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that shall be amended or revised when necessary to meet the following objectives:

1. Identify all pollutant sources of sediment that may affect the quality of storm water discharges associated with construction activity (stormwater discharges) from the construction site.
2. Identify non-storm water discharges.
3. Identify, construct, and implement Best Management Practices (BMPs) in accordance with a time schedule to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction.
4. Develop a maintenance schedule for BMPs installed during construction designed to reduce or eliminate pollutants after construction is completed (post-construction BMPs).

Over the last decade, the State Water Board adopted a series of amendments to the Construction Permit. One of the most notable amendments involves Best Management Practices (BMPs). The Construction Permit now requires specific BMPs as well as numeric action levels (NALs) so that minimum federal standards are met, a SWPPP and a Rain Event Action Plan (REAP) are developed by a certified Qualified SWPPP Developer (QSD), and that the discharger comply with specific BMPs and NALs. Construction activities are also required to control pollutant discharges that utilize best available technology economically achievable (BAT) for toxic and non-conventional pollutants, and best conventional pollutant control technology (BCT) for conventional pollutants.

Construction activity subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling, excavation, or landscaping operations. Regulations and requirements must be met during the construction phase of all new development projects, primarily through control of discharges of pollutants into storm drains or creek channels. Avoidance of such discharges can be attained by the use of seasonal- and phase-appropriate effective BMPs, including erosion control, run-on and runoff control, sediment control, active treatment systems, good site management, and non-storm water management through all phases of construction until the site is fully stabilized by landscaping or the installation of permanent erosion control measures. These criteria are required to be established in the SWPPP, conforming to the prevailing CASQA BMP construction handbook, Caltrans stormwater quality construction site BMP handbook, and/or any other or newer BMPs available since the release of the handbooks, as required given project needs. When project construction is completed, the applicant must file a notice of termination.

#### *Stormwater Discharges*

The current municipal stormwater permit under the NPDES permit program (Phase II Small MS4 General Permit, 2013-0001-DWQ; “Phase II Permit”) that is in effect for the City of Patterson was issued by the State Water Board in 2013. The permit requires that permittees implement controls to reduce discharge of pollutants from their MS4s to the maximum extent practicable and to effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses. The permit incorporates stormwater pollution management requirements for post construction stormwater management as set forth in Section E.12.

Section E.12 requires that new development projects incorporate post-construction stormwater pollution management measures in addition to standard BMPs that include stormwater treatment

measures, stormwater site design measures, and source control measures that control stormwater pollution after the construction of a project. These requirements include that permittees shall regulate development to comply with the following Sections:

- E.12.b Site Design Measures
- E.12.c. Regulated Projects
- E.12.d. Source Control Measures
- E.12.e. Low Impact Development (LID) Design Standards
- E.12.f. Hydromodification Measures
- E.12.g. Enforceable Mechanisms
- E.12.h. Operation and Maintenance of Storm Water Control Measures
- E.12.i. Post-Construction Best Management Practice Condition Assessment
- E.12.j. Planning and Development Review Process
- E.12.k. Post-Construction Storm Water Management Requirements Based on Assessment and Maintenance of Watershed Processes
- E.12.l. Alternative Post-Construction Storm Water Management Program

## State

### ***Porter-Cologne Water Quality Control Act***

The Porter-Cologne Water Quality Control Act of 1969 authorized the State Water Board to provide comprehensive protection for California's waters through water allocation and water quality protection. The State Water Board implements the requirements of the Clean Water Act Section 303, indicating that water quality standards have to be set for certain waters by adopting water quality control plans under the Porter-Cologne Act. The Porter-Cologne Act established the responsibilities and authorities of the nine RWQCBs, which include preparing water quality plans for areas in each region, identifying water quality objectives, and issuing NPDES permits and Waste Discharge Requirements.

### ***Central Valley Regional Water Quality Control Board***

The current Central Valley RWQCB Basin Plan (2018) includes the Delta-Mendota Canal Hydrologic Unit 541.10 Patterson, a sub-basin of the San Joaquin River Hydrologic Unit. Beneficial uses designated for the Patterson sub-unit include municipal and domestic supply, irrigation, stock watering, recreation-1 (contact), recreation-2 (other noncontact), freshwater habitat (warm), and wildlife habitat. The Basin Plan designates or establishes such beneficial uses of waters to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Water quality objectives are defined as limits or levels of water quality constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance.

### **Urban Water Management Planning Act of 1983 and Water Conservation Act of 2009**

The State of California passed Assembly Bill (AB) 797 in 1983, further amended in 1990 and 1991, to require municipal water suppliers serving more than 3,000 customers or supplying more than 3,000 AF annually to prepare and adopt Urban Water Management Plans (UWMP) with specified elements. The UWMPs must be updated every five years to include projections of both potable and recycled water use, identify current reclamation practices, address additional alternative conservation measures, and describe findings, actions, and planning related to a number of water conservation and reclamation measures. In addition, an Urban Water Shortage Contingency Plan must be prepared and updated every five years, specifying proposed measure for response to short- and long-term water shortages.

The State of California passed Senate Bill (SB) X7-7 as a water conservation measure seeking a 20 percent statewide reduction in urban per capita water use by December 31, 2020. SB X7-7 required that each retail water agency preparing a 2010 UWMP must calculate baseline water use as well as an interim (for 2015) and final (for 2020) water use reduction target using specified guidelines.

### **Sustainable Groundwater Management Act**

The State of California established a legislative framework for sustainable groundwater management, the Sustainable Groundwater Management Act (SGMA), that became law on September 16, 2014. SGMA requires governments and water agencies to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge within a specified timeframe depending on a groundwater basin prioritization system that ranks each groundwater basin's overdraft condition (e.g., low, medium, high priority, etc.).

Groundwater basins in California are vulnerable to six types of undesirable results (UCS 2017), which GSPs are to be designed to avoid. These undesirable results include:

1. Significant and unreasonable reduction of groundwater storage.
2. Significant and unreasonable lowering of groundwater levels.
3. Significant and unreasonable seawater intrusion.
4. Significant and unreasonable degraded water quality.
5. Significant and unreasonable land subsidence.
6. Significant and unreasonable depletions of interconnected surface water.

There is no technical definition for sustainability. It is not simply the presence or absence of a result like land subsidence that is in itself undesirable; rather, it is the extent to which the result is undesirable. For each undesirable result, the local community will be tasked to decide how much damage is acceptable, or conversely, how much repair is desired. Despite the flexibility around local sustainability goals, there are two definite boundaries that limit the interpretation of sustainability. The California Water Code states that one basin's definition of sustainability cannot threaten others' ability to achieve their sustainability goals (Section 10733(c)), and, second, indicates that both continued overdraft and significant depletion of interconnected surface waters are unacceptable long-term strategies (Section 10735.2(a)(5)).

The California Department of Water Resources' (DWR) Groundwater Update (2013) has identified the Delta-Mendota Subbasin as a critically overdrafted basin. SGMA requires that local agencies form Groundwater Sustainability Agencies (GSAs) to manage basins sustainably and that GSPs are adopted for these critically overdrafted basins by January 2020 with measures necessary to attain sustainable conditions in those subbasins by 2040. A GSP must generally outline how the GSA will implement, manage and measure specific actions for the health and viability of the basin. The City of Patterson has elected to form its own GSA within City boundaries and is a partner in the Northern & Central Delta-Mendota GSP Group along with other local GSAs.

A public draft version of the Northern & Central Delta-Mendota groundwater sustainability plan (GSP, 2019) was submitted to the State of California in January 2020 for review and public comment. Groundwater management measures expected to be implemented include:

- Increased conservation and efficiency
- Increased groundwater recharge
- Increased water recycling and reuse
- Integrated groundwater management with other water resources (such as stormwater)
- Lower aquifer pumping limitations to minimize inelastic land subsidence

The GSP (2019) includes policies from the City of Patterson's General Plan for urban development and land use projections to 2030 and 2050, including designated expansion areas that encompass future developments the Zacharias and Baldwin planning areas. These planning areas are included in Chapter 5.4.6 in the GSP under the "Projected Water Budget with Climate Change and Project & Management Actions" section, where future projected conditions are evaluated.

## Local

### **City of Patterson**

#### *Standard Specifications*

The City of Patterson Standard Specifications (Willett, 2011), Section 8, require that detention basins be designed with a capacity to hold the total runoff from a 10-year frequency, 24-hour event if gravity discharge is used. For pump discharge, the capacity shall be large enough to hold the total runoff from a 50-year frequency, 24-hour event. Detention basins shall be provided with outlet facilities capable of draining a full basin within 48 hours.

#### *Stormwater Standards Manual*

The Multi-Agency Post-Construction Stormwater Standards Manual (Larry Walker Associates, 2015) summarizes regulatory requirements to assist the development community in complying with the requirements of Provision E.12 of the Phase II Permit and local ordinances.

The manual provides guidance for planning, implementing, and maintaining effective control measures with the intention of improving water quality and mitigating potential water quality impacts, including hydromodification, from stormwater and non-stormwater discharges, and provides tools to address the following objectives:

- Establish the methodology to consider the effects of stormwater runoff from a new development or redevelopment project during the project planning phase;
- Minimize contiguously-connected impervious surfaces in areas of new development and redevelopment, and where feasible, to maximize on-site infiltration of stormwater runoff;
- Implement site design measures to preserve, create, or restore areas that provide important water quality benefits such as riparian corridors, wetlands, stream and buffers, and maintain, protect, and improve underlying soil quality;
- Provide source control measures to minimize the transport of and/or eliminate potential sources of pollution to stormwater runoff or run-on into the MS4 and receiving waters;
- Implement Low Impact Development (LID) control measures to reduce and/or eliminate the volume of stormwater runoff and pollutants leaving the project site;
- Control post-construction peak stormwater runoff discharge volumes and velocities (hydromodification) to mitigate impacts from downstream erosion and to protect downstream habitat; and
- Develop tools for effectively operating, managing, and maintaining stormwater control measures

#### *General Plan*

The City of Patterson General Plan sets forth the following goals and policies relevant to hydrology and water quality:

- **Goal PS-1:** To maintain an adequate level of service in the City's water system to meet the needs of existing and future development.
- **Policy PS-1.1:** Water Supply. The City shall continue to use groundwater as a source of domestic water for the city. The City shall also pursue, as expeditiously as possible, acquisition of surface water rights to supplement its water supply in order to accommodate projected water demand and provide for water supply security.
- **Policy PS-1.2:** City-owned systems. The City shall expand and develop water treatment, distribution, and storage facility systems to accommodate the needs of existing and planned development.
- **Policy PS-1.3:** Supply for new development. The City shall not approve any new development without the demonstrated assurance of an adequate water supply to support such development and a City-approved funding mechanism to pay for necessary improvements.
- **Policy PS-1.4:** Agency coordination. The City shall coordinate, to the extent feasible, with other agencies involved in water resource development in the region.
- **Goal PS-3:** To maintain an adequate level of service in the City's storm drainage system to accommodate runoff from existing and future development and to prevent property damage due to flooding.

- **Policy PS-3.2:** Expansion of drainage systems. The City shall expand and develop storm drainage facilities to accommodate the needs of existing and planned development.
- **Policy PS-3.3:** Drainage districts. The City shall form storm drainage districts as needed to ensure that storm drainage facilities are properly constructed, operated, and maintained.
- **Policy PS-3.4:** Fair share costs. The City shall, through a combination of drainage improvement fees and other funding mechanisms, ensure that new development pays its fair share of the costs of drainage system improvements.
- **Policy PS-3.5:** Pollutant requirements. Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.
- **Policy PS-3.6:** National Flood Insurance Program. The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.
- **Policy PS-3.7:** Finish floor elevation – residential development. New residential development, including mobile homes, shall be constructed so that the lowest floor is at least 12 inches above the 100-year flood level.
- **Policy PS-3.8:** Finish floor elevation – non-residential development. Non-residential development shall be anchored and flood-proofed to prevent damage from the 100-year flood or, alternatively, elevated to at least 12 inches above the 100-year flood level.
- **Policy PS-3.10:** Storm drainage improvements required. Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall. Where feasible, storm drainage facilities should continue to be combined with park facilities.
- **Policy PS-3.11:** Conditions for grading. The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- **Policy PS-3.12:** Detention basins. The City shall ensure that stormwater detention basin designs provide safety for the public, are visually appealing and unobtrusive, incorporate wildlife habitat, and, where feasible, offer recreational opportunities.
- **Policy PS-3.13:** Surface pollutant control. The City shall require new development to incorporate runoff control measures to minimize discharge of surface pollutants into drainage systems. Examples of potential programs include:
  - The use of “bioswales” and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants;
  - Installation of grease/oil separators to keep these contaminants out of storm runoff;
  - Regular street sweeping programs to prevent the buildup of oil, grease, and other contaminants and keep them from being swept into creeks and rivers;
  - Minimizing pesticide use and promoting the use of natural pest controls;
  - Encouraging the installation of “gray water” systems.

- **Policy PS-3.14:** Erosion control. The City shall require new development to incorporate erosion control measures to minimize sedimentation of streams and other natural drainage features.
- **Goal HS-2:** To prevent loss of life, injury, and property damage due to flooding.
- **Policy HS-2.1:** Flood control management. The City shall prepare and adopt flood management plans and practices aimed at protecting life and property from the harmful effects of flooding. As part of this effort, the City shall establish criteria for:
  - Evaluating whether new development should be located in flood hazard zones;
  - Identifying construction methods or other methods to minimize damage if new development is located in flood hazard zones, and
  - Maintaining the structural and operational integrity of essential public facilities during flooding.
- **Policy HS-2.4:** FIRM Program. The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.
- **Policy HS-2.5:** Flood protection for residences. New residential development, including mobile homes, shall be constructed so that the lowest floor is at least 12 inches above the 100-year flood level.
- **Policy HS-2.6:** Flood protection for non-residential development. Non-residential development shall be anchored and flood-proofed to prevent damage from the 100-year flood or, alternatively, elevated to at least 12 inches above the 100-year flood level.
- **Policy HS-2.8:** Provision of storm drains. Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall.
- **Policy HS-2.9:** Prevention of siltation. The City shall impose appropriate conditions on grading projects performed during the rainy season to ensure that silt is not conveyed to storm drainage systems.
- **Policy HS-2.10:** Flooding impacts of new development. New development with the potential to increase flooding impacts on adjoining or downstream properties shall be prohibited.
- **Policy HS-2.11:** Priority for flood control improvements. The City's first priority in preventing risks to life and property resulting from flooding shall be to designate appropriate land uses in areas subject to flooding. Only when this land use-based approach is not sufficient to reduce hazards to life and property to acceptable levels will the City support the construction of new flood control projects.
- **Policy HS-2.12:** Buildable site. Parcels shall not be created upon which the presence of easements, floodplain, marsh or riparian habitat, or other features would leave insufficient land to build and operate structures. This policy shall not apply to open space lots specifically created for dedication to the City or another appropriate party for habitat protection, flood control, drainage, or wetland maintenance.

- **Policy HS-2.13:** Bridge construction. New and modified bridge structures shall not cause an increase in water surface elevations of the 100-year floodplain exceeding one foot, unless analysis clearly indicates that the physical and/or economic use of upstream or downstream property will not be adversely affected.
- **Policy HS-2.14:** Runoff control. The City shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans. All such control measures shall consider potential affects to adjacent property owners.
- **Policy HS-2.16:** Flood hazard mitigation prior to development. The City shall not approve new development in areas subject to a 100-year flood event, based on FEMA or on other updated mapping acceptable to the City, unless and until the flood hazard has been mitigated. Such mitigation may be accomplished by one, or a combination of, the following:
  - Compliance with Title 17 of the City’s Municipal Code, Flood Hazard areas.
  - Installation of flood control improvements along Del Puerto Creek and/or Salado Creek.
  - Avoidance of flood prone areas.
- **Policy HS-2.17:** Flood hazard mitigation prior to development. The City shall require any development on land subject to a 100- year flood event, based on Federal Emergency Management Agency (FEMA) or on other updated mapping acceptable to the City, to conform to National Flood Insurance Program (NFIP) standards.
- **Policy HS-2.18:** Low Impact Development. New development shall incorporate provisions for low impact development as defined by as minimizing or eliminating pollutants in storm water through natural processes and maintaining pre-development hydrologic characteristics, such as flow patterns, surface retention, and recharge rates.

#### *Municipal Code*

The City of Patterson Municipal Code establishes the following requirements that pertain to hydrology and water quality:

- Title 13, Chapter 13.32 purpose and intent is to protect and promote the health, safety, and general welfare of the citizens of Patterson by limiting discharges of non-storm-water into the storm water conveyance system caused by spills, dumping or disposal of materials other than storm water, and by reducing pollutants in urban storm water discharges to the maximum extent practicable.
- Chapter 13.32 also intends to protect and enhance the water quality of watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the Federal Clean Water Act (33 U.S.C. Section 1251 et seq.) and any subsequent amendments thereto, by reducing pollutants in storm water discharges to the maximum extent practicable and by prohibiting non-storm-water discharges to the maximum extent practicable into the storm drain system (Ord. 777 § 1 (part), 2015), including:
  - Prohibition of discharges of pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards.

- Codification of federal and state requirements for stormwater pollution prevention and required compliance with statutes and regulations as detailed in this regulatory framework section.
- Title 16, Chapter 16.64 requires that applicants proposing divisions of land pay fees for constructing planned drainage facilities for the removal of surface and storm water from local or neighborhood drainage areas prior to the filing of any final map or parcel map.
- Title 17, Chapter 17.12 sets forth standards for development in flood hazard areas. The chapter requires that new construction comply with federal floodplain safety requirements, including elevating residential structures 1 foot above the 100-year flood elevation in FEMA Zones A1-30, AE, and AH. Residential structures in Zone AO must be elevated, including basement, above the highest adjacent grade as least as high as the depth number specified in feet on the FIRM plus one foot, or at least three feet if no depth number is specified. Non-residential structures either adhere to residential requirements or be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water, is resistant to hydrostatic and hydrodynamic loads and effects of buoyancy and is certified by a registered professional engineer or architect.

### 3.9.4 - Methodology

Balance Hydrologics, Inc. analyzed the potential hydrologic and water quality impacts associated with the proposed Zacharias Master Plan, based on the Administrative Draft Environmental Impact Report Project Description and other project documents within the context of local, state, and federal regulations.

Phased development is expected within the project envelope, which is defined as two distinct areas. The Zacharias planning areas is located north of existing Patterson city limits. Areas to the west of Baldwin Road are designated as industrial and commercial space, while residential neighborhoods are planned for areas east of Baldwin Road. The Baldwin planning area is located south of existing Patterson city limits at the current southern terminus of Baldwin Road. Residential neighborhoods are planned for this area. From a hydrologic and water quality perspective, potential impacts of the planning areas would generally be similar and thus are grouped together for analysis; when needed the Zacharias or Baldwin planning areas are individual analyzed.

### 3.9.5 - Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, the impact of the proposed project on hydrology and water quality would be considered significant if it would:

- a) violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- b) substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

- c) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:
  - (i) result in substantial erosion or siltation on- or off-site
  - (ii) substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off-site;
  - (iii) 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; or
- d) in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; (Refer to Section 7, Effects Found Not To Be Significant)
- e) conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

### 3.9.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with development of the project and provides mitigation measures where appropriate.

#### Water Quality

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**Impact HYD-1: Buildout of the Master Plan may violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?**

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#### *Impact Analysis*

This impact will address surface water quality and groundwater quality.

#### *Surface-Water Quality*

##### *Construction Phase*

Project implementation would involve the development of up to 5,391 dwelling units, 7,765,000 square feet of non-residential uses, 29 acres of school space, 65 acres of park space, and 13 acres of open space on 1,293 acres at full build-out across the combined Zacharias and Baldwin planning areas (WSA 2020). Existing PID irrigation canals that cross the project may be realigned to accommodate roadway improvements and may be relocated underground as pipelines. A setback will be established between the Delta-Mendota Canal and development of the Baldwin planning area. For the purposes of this EIR, buildout is assumed to occur over a 20-year period.

During construction activities in the Zacharias planning area, clearing, grading and other activities would increase the potential for on-site erosion, potentially leading to increased turbidity and sedimentation via overland sheet flow into existing PID irrigation canals as well as Salado Creek and ultimately into the San Joaquin River. The southern-most boundary east of Baldwin Road in the Zacharias planning area is adjacent to a piped section of Salado Creek from east of Cliff Shallow Drive to Ward Avenue. The creek is daylighted upstream and downstream of this area, and there is

potential for soil erosion to occur along project boundaries during construction in areas where temporary soil storage is required.

During construction activities in the Baldwin planning area, clearing, grading and other activities would increase the potential for on-site erosion, potentially leading to increased turbidity and sedimentation via overland sheet flow into Salado Creek and ultimately into the San Joaquin River. In addition, the western boundary of the Baldwin planning area is adjacent to the Delta-Mendota Canal, so there is potential for soil erosion to occur along project boundaries during construction in areas where temporary soil storage is required.

Other pollutants that might impact surface water quality during project construction include petroleum products (gasoline, diesel, kerosene, oil and grease), hydrocarbons from asphalt paving, paints, solvents, and litter. An accidental release of any of these substances could degrade the water quality of the surface water runoff.

Because the project would disturb more than one acre of land, the applicant is required to prepare a Stormwater Pollution Prevention Plan (SWPPP), per the NPDES Construction Permit requirements through the State Water Resources Control Board (State Water Board). The SWPPP would address potential erosion and sedimentation issues through a project-specific erosion control plan, as well as other best management practices (BMPs) to reduce the potential for spills and other contamination from on-site construction activities. Appropriate BMP implementation measures for control of sediment and other pollutants from construction sites can be found in the most recent version of the CASQA BMP construction handbook, Caltrans stormwater quality construction site BMP handbook, and/or any other or newer BMPs available since the release of the handbooks, as required given project needs. The project SWPPP is likely to include, but is not limited to, the following BMPs related to construction water-quality impacts:

- If the entire site is not graded in a single operation, leave existing vegetated areas undisturbed until construction of improvements on each portion of the development site is ready to begin;
- Immediately re-vegetate or use erosion control measures to otherwise protect all disturbed areas from both wind and water erosion during and after completion of grading;
- Collect storm water runoff into stable drainage channels and/or small drainage basins to prevent the buildup of large, potentially erosive storm water flows;
- Direct runoff away from all areas disturbed by construction;
- Use sediment ponds or siltation basins to trap eroded soils before runoff is discharged into on-site or off-site drainage culverts and channels;
- Install straw rolls, hay bales or other approved materials below all disturbed areas adjacent to Salado Creek to prevent eroded soils from entering the stream channel. Maintain these facilities until all disturbed upslope areas are fully stabilized, in the opinion of the City Engineer;
- To the extent possible, schedule major site development work involving excavation and earthmoving for construction during the dry season;

- Develop and implement a Standard Operation Procedures program for the handling, storage, use, disposal of fuels and hazardous materials, and which shall contain a contingency plan covering accidental hazardous materials spill;
- Avoid cleaning, fueling, or maintaining vehicles on-site, except in an area designated to contain and treat runoff; and
- During and after construction, inspect all drainage facilities immediately downstream of the grading site for accumulated sediment, and clear these facilities of debris and sediment as necessary;
- BMP performance and effectiveness shall be determined either by visual means where applicable (e.g., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (such as inadvertent petroleum release) is required by the Central Valley RWQCB to determine adequacy of the measure;
- In the event of significant construction or final landscape installation delays, native grasses or other appropriate vegetative cover shall be established on the construction site as soon as possible after disturbance, as an interim erosion control measure throughout the wet season.

In compliance with the requirements of the statewide NPDES Construction Permit, the City or its qualified SWPPP developer will prepare a SWPPP for submittal with a Notice of Intent to the Central Valley RWQCB prior to the start of construction. The SWPPP would specify BMPs to be employed during the construction phase to control sediment loads and pollutants. The SWPPP shall include the minimum BMPs required for the identified Risk Level of the project and receiving waters. BMP implementation shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction or the Caltrans Stormwater Quality Handbook Construction Site BMPs Manual.

Mitigation Measure HYD-1a requires implementation of a SWPPP in conjunction with each development phase of the Master Plans. Proper implementation of the project-specific SWPPP would reduce the potential construction-related water quality impacts to a less than significant level.

#### *Operational Phase*

The proposed project would increase impervious surfaces as new roads, parking areas, and rooftops are built out. Parking lots are prone to contributing oil, grease, metal brake dust, and trash to stormwater runoff. While rooftop runoff does not typically contribute stormwater contaminants at levels as high as from parking areas, contributions from rooftops includes airborne deposition of particulate matter that may subsequently be carried into the stormwater drainage system and could be elevated given the proximity of Interstate 5 and traffic associated with the project itself. Impervious areas and associated stormwater drainage systems can provide an efficient conveyance system for other potential contaminants, including fertilizers and pesticides, to the receiving streams. Untreated, the above contaminant sources are likely to adversely impact water quality in Salado Creek and downstream San Joaquin River.

Similar to other projects within the City of Patterson, the project will be required to comply with the Phase II Small MS4 Permit (Phase II Permit), which prescribes methods for residential, commercial and industrial developments to control and treat stormwater runoff. The Phase II Permit requires project proponents to incorporate site design measures, source controls, stormwater treatment measures, and/or other low impact development (LID) measures to reduce stormwater runoff and limit the transport of pollutants to receiving waters. The Phase II Permit also requires implementation of source control measures for specific pollution-generating activities such as accidental spills or leaks and landscape/outdoor pesticide use. Potential sources of runoff pollutants are identified by the City (such as Patterson General Plan Policy PS-3.13: Surface pollutant control and Policy PS-3.14: Erosion Control, as well as Patterson Municipal Code Chapter 13.32) that require implementation of appropriate permanent and operational source control BMPs.

Under existing conditions, stormwater runoff within the existing Zacharias planning area predominantly infiltrates into agricultural fields or moves across the landscape as overland flow toward Salado Creek to the south-southeast. Stormwater runoff within the existing Baldwin planning area predominantly infiltrates into agricultural fields or moves across the landscape to the east as overland flow toward Salado Creek. Under post-project conditions, stormwater discharge from impervious surfaces, including roof, roadway, sidewalk and hardscape would be directed to on-site stormwater runoff basins that meet Phase II Permit water quality treatment requirements. The master plans have designated basin locations that would be worked into the landscaped areas surrounding the proposed buildings, parking areas, roads, and related impervious infrastructure. Stormwater runoff basins would be located in areas where design percolation rates have been tested and calculated by a registered hydrogeologist (Soares, 2013; Ballard and Krause, 2019a,b,c and 2020), and which support fulfillment of Phase II Permit BMP design requirements. Under post-project conditions, the project would include approximately 765 acres of permeable surfaces (approximately 62 percent of the 1227.1-acre project site), suggesting that ample space would be available in which to accommodate appropriate stormwater treatment BMP features.

The proposed project is required to comply with provisions of the Phase II Permit for post-construction best management practices and incorporate LID concepts into the project design in order to reduce post-project runoff (and associated non-point-source contaminant transport) to receiving waters. The project applicant will be required to prepare and submit a Stormwater Quality Management Plan (SWQMP) to the City of Patterson for review and approval prior to issuance of building permits for the proposed project. The plan would require documentation of stormwater quality control measures to ensure that runoff associated with operational activities would not contribute to the degradation of water quality in downstream waterways. Proper design, sizing, and implementation of the stormwater basins would effectively address both water quality and hydromodification concerns. Documentation is required once final designs are completed in order to verify compliance with the water quality and hydromodification provisions. Implementation of the stormwater control plan, in compliance with the NPDES Phase II permit, would reduce potential stormwater quality and hydromodification impacts to a less than significant level. No further mitigation is required.

### **Groundwater Quality**

The stormwater treatment BMPs discussed above are intended to maximize infiltration, assuming infiltration rates are sufficient and that depth to the seasonal groundwater peak elevation meets the performance/design standards of the BMPs. If not, underdrains may be required. Under either scenario, the BMPs are expected to meet water quality treatment standards as required under Provision E.12 of the Phase II Permit.

All stormwater runoff within the Zacharias planning area will ultimately drain to two lakes, and then be pumped up to a basin for recharge to groundwater in order to support the City's effort to sustainably manage the lower aquifer that supplies potable water to the City. Technically, stormwater treatment BMPs may not be required in this area, as the planning area will not discharge to the City storm drain system or to any surface receiving water (such as Del Puerto Creek, Salado Creek or the San Joaquin River; essentially, the planning area will operate as a large self-retaining area). However, direct drainage of stormwater to the receiving detention/retention ponds without treatment could result in accumulation of contaminants within the retention lake, that could ultimately be pumped up to the recharge basin.

Pretreatment, which refers to design features that provide settling of large particles before stormwater runoff enters a stormwater treatment control measure, is important to ensure proper operation of a bioretention facility and reduce the long-term maintenance burden. Pretreatment (e.g., vegetated swales, proprietary devices) must be provided to reduce the sediment load entering a bioretention facility in order to prevent the engineered planting media and/or underlying soil from being occluded prematurely and maintain the infiltration rate of the bioretention facility. Additionally, for sites with high infiltration rates (or where recharge is desired), pretreatment is required to protect groundwater quality.

The proposed recharge basin location was specifically selected due to the occurrence of relatively high infiltration rates in that area and a thinning out of the Corcoran clay layer, and thus may not provide adequate treatment in order to protect groundwater quality, especially considering that it is recharging to the lower aquifer that serves as the City's primary source of drinking water. This would be a significant impact to groundwater quality. The following mitigation measure requires the Zacharias Planning area to incorporate stormwater quality BMPs similar to those that are required for the Baldwin Planning Area (because that portion does ultimately drain to Solado Creek).

#### **Level of Significance Before Mitigation**

Potentially significant impact.

#### **Mitigation Measures**

**MM HYD-1a** Prior to issuance of the first grading permit for each development phase of either the Baldwin Master Plan or Zacharias Master Plan, the applicant shall prepare and submit a Stormwater Pollution Prevention Plan to the City of Patterson for review and approval that demonstrate the use of stormwater treatment Best Management Practices (BMP) identified in the most recent version of the California Stormwater

Quality Association Stormwater Best Management Handbook-Construction or the Caltrans Stormwater Quality Handbook Construction Site BMPs Manual.

- MM HYD-1b** Prior to issuance of the first building permit for each development phase of either the Baldwin Master Plan or Zacharias Master Plan, the applicant shall prepare and submit drainage plans to the City of Patterson for review and approval that demonstrate the use of Low Impact Development practices, bioswales, bioretention and other forms of stormwater treatment Best Management Practices pursuant to the NPDES Phase II stormwater permit (or most recently approved permit).

### ***Level of Significance After Mitigation***

Less than significant impact.

### **Groundwater Supply and Recharge**

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**Impact HYD-2:** **Would buildout of the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?**

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### ***Impact Analysis***

This impact addresses groundwater supply and recharge.

### ***Groundwater Supply***

The City of Patterson will supply potable and non-potable water to the project. The City obtains all their water supply from groundwater and does not currently purchase or import water or have any current plans to do so in the future. The City anticipates developing new well heads within the Zacharias planning area to extract potable water from the lower aquifer in support of increased water demand due to the project, when project buildout requires it. All parks and public landscape space will be irrigated with non-potable water.

The Delta-Mendota groundwater subbasin, from which the City's potable water is extracted, was classified as a critically overdrafted aquifer under SGMA in 2014. SGMA required that GSAs in critically overdrafted areas prepare and submit a GSP by January 31, 2020 with measures necessary to attain sustainable conditions in those subbasins by 2040. The City of Patterson formed a GSA and became a member of the Northern & Central Delta-Mendota GSP Group. The group submitted a draft GSP to the state in January 2020 (GSP 2019) that outlines projects and management actions to halt long-term declines in groundwater storage in both the upper and lower aquifers.

On a regional scale, primary groundwater management measures that would be implemented via the GSP include increased conservation and efficiency, increased groundwater recharge, increased water recycling and reuse, integrated groundwater management with other water resources such as stormwater, and lower aquifer pumping limitations relative to water levels at key index wells to minimize inelastic land subsidence (GSP 2019).

On a local scale, the City of Patterson assessed future water demand needs in recent water management planning documents (WMP 2018; UWMP 2016). The City selected a portfolio for water

supply that includes groundwater pumping for potable and non-potable use, recycled water, stormwater capture, and conservation. The WMP also evaluated supply options that included import or purchase of water, but deemed that they are not necessary at this time and would require additional study if they were to eventually be implemented in coming years. The WMP concluded that, with the implementation of planned projects and conservation efforts, the City's potable and non-potable water supply is sufficient to support expected growth over the 30-year planning period (including growth associated with development at the project site), and that expected water usage would not significantly impact groundwater resources in the subbasin from which the City draws its supply.

The total annual groundwater pumping capacity of the City is 7,550 AFY (as of 2018), with about 3,318 AFY of that capacity currently being utilized (WSA 2020). Potable water demand in 2018 was 3,102 AFY and non-potable was 216 AFY. An Operational Yield Study (WMP 2018) was conducted to estimate the volume of groundwater that the City could safely extract from the Delta-Mendota Subbasin. The study concluded that the City could construct additional groundwater wells to increase its pumping capacity to the range of 10,000 – 12,000 AFY without impacting current groundwater pumping infrastructure and without significantly impacting the use of groundwater resources in the area surrounding the City's Sphere of Influence (which would include the Zacharias planning area once annexed). Under the City's selected future supply portfolio, it is assumed that the City would construct enough potable wells to produce up to 10,115 AFY at buildout (WAS , 2020), which would be on the low side of the range found to be without significant impacts to groundwater infrastructure or groundwater resources. Accordingly, increased water demand from this project (which has been included in the City's long-term demand projections) will not result in significant impacts to groundwater supply relative to other users in the area. Additionally, as discussed further below, the proposed project would contribute to recharge of the lower aquifer through infiltration of stormwater runoff from the project site, contributing to sustainable operation of the City's potable groundwater supply, as well as having a markedly smaller upper aquifer water demand.

Total existing water demand for the project area was estimated to be 5,384 AFY, of which 5,370 AFY was estimated as the maximum non-potable groundwater withdrawals for agricultural use (drawn from the upper aquifer) and 14 AFY was residential potable water use (WSA 2020). Groundwater withdrawals were lower in years when surface water supplies were available.<sup>1</sup> Total predicted water demand of the project at full build-out is projected as 2,159 AFY for an average water year, a net reduction compared to existing conditions (WSA 2020).

#### *Project-Specific Potable Water Supply*

Even though overall water use would decrease under post-project conditions, the amount of potable water needed would increase. Projected potable water demand would be 1,560 AFY, an increase in demand of 1,546 AFY from the lower aquifer relative to existing conditions. In order to support the City's goal to sustainably manage the underlying groundwater resources, the project has plans to pump all stormwater runoff to a newly established recharge basin located west of the project, centered within the footprint of an abandoned gravel-mining quarry adjacent to the south side of

<sup>1</sup> Surface water deliveries to agricultural lands in the Zacharias planning area ranged from approximately 750 AFY to 2300 AFY between 2009-2019 (pers. comm. Maria Encinas, City of Patterson via information supplied by West Stanislaus Irrigation District).

Del Puerto Creek, north of Zacharias Road and east of Raines Road. Hydrogeological studies by KSA indicate that recharge basin(s) near the Delta-Mendota Canal would recharge to the lower aquifer. Thus, the recharge basin site selected for this project (in coordination with the City) is expected to help replenish the City's potable water supply more so than it would if recharge were concentrated at the project site itself, where infiltration to the lower aquifer would be impeded by the presence of the Corcoran clay confining layer.

The WSA (2020) concluded that the City of Patterson has an adequate groundwater supply to serve the project area while also serving the City's current customers. Recommendations to reduce projected demand include additional conservation programs, requiring high water efficiency standards for all fixtures, appliances and industrial processes installed in the project area, and consideration of requiring the use of drought tolerant landscaping or requiring other actions to improve landscape efficiencies. Furthermore, the WSA recommended that the City and project stakeholders confirm phasing of the development and coordinate with the GSA group implementing the Northern & Central Delta-Mendota Region GSP so that the City's supply projects can be implemented appropriately to ensure a reliable supply for all of its customers through the project build-out.

#### *Project-Specific Non-Potable Water Supply*

In addition to the potential impacts to potable water sources discussed above, the project may also affect water supply in the upper aquifer (non-potable supply). The projected non-potable water demand of the project is expected to be 599 AFY, a decrease in demand of 4,771 AFY from the upper aquifer, water which could be used elsewhere, or which would support sustainable management through net pumping reductions within the *upper* aquifer. Although diverting stormwater runoff from the project site up to the proposed recharge basin (and ultimately to the lower aquifer) would decrease the amount of water available for infiltration to the upper aquifer directly beneath the site, the potential estimated reduction in upper aquifer recharge is considerably less than the decrease in pumping from the upper aquifer (4,771 AFY) that would result from the conversion of the project site from primarily agricultural (non-potable) water use to urban (potable) water use.

The WSA (2020) provides a simplified estimation of the amount of stormwater that would have the potential to recharge the upper aquifer of 1,185 AFY (but which is to be pumped to the recharge basin instead as a result of an agreement between the project applicant and the City, to better support the City's potable water supply), based on the project area and the City's annual average rainfall of 11 inches per year. This volume serves as the upper-bound of the average long-term change in recharge to the upper aquifer on the project site itself. In addition, Debler and Chapman (2020) estimated an average annual runoff volume of 598 AFY based on Zacharias project area, mean annual precipitation and a mean runoff coefficient per basin area, which yields a more likely average long-term volume of potential recharge to the upper aquifer (excluding project plans to pump stormwater to the recharge basin). Some of that stormwater runoff volume may still recharge to the upper aquifer, through infiltration in treatment BMPs or within the distributed detention/retention basins located within the project site.

It is important to note that the WSA (2020) makes the assumption that the project will retain and infiltrate all stormwater on-site into the upper aquifer, which differs from the assessment herein. The

current plans to divert stormwater to the proposed recharge basin at the upper end of the alluvial fan to support lower aquifer recharge was the result of an agreement between the project applicant and the City, to better support the City's potable water supply. Still, as discussed above, this difference from the analysis in the WSA does not conflict with the ultimate conclusion that there will not be a significant impact to water supply in the upper aquifer.

#### *Summary*

In summary, based on the discussion above, the net effect of the project would be to:

- Reduce pumping from the upper aquifer as a result of conversion to urban uses;
- Reduce recharge to the upper aquifer as a result of diverting stormwater runoff to the lower-aquifer recharge basin, but at a substantially smaller average annual rate than the increase associated with #1 above;
- Increase usage of potable water by 1,546 AFY (provided by the City), but still within the acceptable range of operational limits of the City's facilities and without impacting the use of groundwater resources in the area surrounding the City (per the Operational Yield Study in the WMP, 2018);
- Increase recharge of water to the lower aquifer to help offset the increase in potable water demand at the project site, and to help the City achieve its sustainability goals under the SMGA GSP.

In coordination with the City of Patterson, the project has identified conservation strategies that reduce potable water demand and aquifer recharge strategies that support lower aquifer recharge to optimize potable water supply. Required implementation of conservation measures and other potential supply and/or recharge activities would further support sustainable groundwater management of the basin. In concert with implementation of SGMA requirements, the above project plans and City requirements would reduce the potential impacts related to groundwater quantity and recharge to a less than significant level.

#### ***Level of Significance Before Mitigation***

Less than significant impact.

#### ***Mitigation Measures***

No mitigation is required.

#### ***Level of Significance After Mitigation***

Less than significant impact.

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## Drainage

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**Impact HYD-3: Buildout of the Master Plans may alter the existing drainage pattern of the site that may create erosion or downstream flooding problems.**

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### ***Impact Analysis***

This impact addresses drainage issues including erosion and siltation, the stormwater drainage system, and on-site and off-site flooding.

### ***Erosion or Siltation***

Construction-related impacts relating to erosion or siltation both on and off-site are discussed in Impact HYD-1. Implementation of the project-specific SWPPP, in compliance with the Central Valley RWQCB Construction Permit requirements, would mitigate the impact related to erosion and downstream flooding during project construction. The resulting construction-related impacts would be less than significant. No further mitigation is required.

Runoff and potential pollution (including sediment) generated by newly impervious surfaces, as discussed in Impact HYD-1, will be mitigated through implementation of Mitigation Measures HYD-1a and HYD-1b such that impacts related to high flows, erosion or increased pollutant levels in downstream waterbodies would be avoided. The resulting post-construction related impacts related to potential hydromodification effects would be less-than-significant. No further mitigation is required.

### ***Stormwater Drainage System***

The proposed project would increase the amount of impervious surfaces within the project area by as much as 460 acres, which is likely to increase the amount and rate of surface-water runoff and result in flooding within or downstream of the project site if not adequately controlled. The project includes installation of a new storm drainage system consisting of retention and detention basins, lakes, bioswales, inlets, and underground piping that would be designed to capture and detain runoff from the project area in compliance with City of Patterson Standard Specifications, Section 8, Storm Drainage. Compliance with City development standards would ensure that the proposed storm drainage system is appropriately designed and implemented in order to prevent flooding on-site, as the project applicant would be required to submit storm drainage master plans to the City of Patterson for review and approval prior to permit issuance such that impacts would be avoided.

### ***Zacharias Master Plan***

Balance Hydrologics assessed the potential for flooding in the Zacharias Master Plan area. An accompanying Technical Memo is provided in Appendix H.

The storm drainage control facilities will be implemented within the Zacharias Master Planning Area with the intention of achieving following:

- Flood Control for the 10-year, 24-hour storm (detention basins) for individual areas, and corresponding Supervisory Control and Data Acquisition (SCADA) outlet devices and lines.

- Flood Control for the 100-year, 24-hour storm (retention basins & wet basin lakes) for the entire Zacharias Master Planning Area.
- The FEMA Solution for retaining the 100-year FEMA floodplain (183 acre-feet of runoff based on the 100-year Flood Depths for Del Puerto Creek Hydraulic Model by Balance Hydrologies, Inc.) for the Zacharias Master Planning Area.
- Recharge of the stormwater runoff into the lower aquifer groundwater table below to Corcoran Clay Layer, where the City's potable water wells draw water from.

The storm drainage system will utilize multiple stages of storage involving both detention and retention purposes for the project site. The Zacharias Ranch Planning Area will utilize a mix of detention (designed for 10-year, 24-hour storage) and retention (designed for 100-year, 24-hour storage) basins. Both types of basins will have SCADA gravity outlet systems with corresponding pipelines to meter the flow out of the basins. The retention basins will be designed to drain stormwater through the SCADA system for up to a 10-year, 24-hour storm event, with the basin retaining and percolating the runoff for corresponding drainage areas for any storm event exceeding a 10-year, 24-hour event; up to a 100-year, 24-hour event. The TPF Development and Keystone Ranch Planning Areas will each have a retention basin with corresponding SCADA outlet systems draining to the lakes. The Ivy Rose Gardens Planning Area will have a detention basin with a pump station and force main for metering water out of the basin to the lakes. The pump station will be designed for a minimum 1360 gallons per minute (gpm) flowrate.

The Lakeside Hills Development Area will have a series of wet basin lakes for flood control. These lakes will be designed to hold the entirety of the 100-year, 24-hour storm event for the Lakeside Hills Development Area, as well as the difference between the 100-year and 10-year events for the detention basins within the Zacharias Ranch and Ivy Rose Gardens Planning Areas. This will achieve the ultimate goal of storing the 100-year, 24-hour storm event for the entirety of the Zacharias Master Planning Area between the lakes and retention basins. Consequently, the lakes will store the 10-year, 24-hour storm event for the entire Zacharias Master Planning Area, as both the detention and retention basins will drain to the lakes for any storm event equal to or below the 10-year event. The lakes will drain to a pump station that will meter out through a force main to the FEMA Basin. The pump station will have a maximum output of 2000 gpm for draining the lakes. Note that the dry basins (detention basins and retention basins) are designed for a maximum 48-hour drawdown period, whereas the lakes are not required as such.

The FEMA Basin will act as a solution to the FEMA requirement to divert or retain the 100-year flood runoff for the Zacharias Master Planning Area. The basin will be designed with a two-stage system for an upper reservoir and lower reservoir area. The lower reservoir will be utilized during smaller storms for a combination of runoff from the floodplain, and for intermediate storage for the stormwater pumped from the lakes. The upper reservoir will be reserved for major storms where floodplain runoff exceeds the lower reservoir. The basin will be designed to percolate the FEMA floodplain runoff within a 48-hour drawdown period. The basin will have an inlet structure attached to the force main coming from the wet basin lakes, and an outlet structure with corresponding pump station. The basin pump will operate at a maximum 2000 gpm flowrate, so as to drain the

stormwater coming from the lakes, and a channel will be provided to minimize infiltration occurrence for the water from the lakes.

The outlet force main from the FEMA Basin will flow to the Recharge Basin Facility, to the northwest of the Zacharias Master Planning Area. The Recharge Basin Facility will be located at the existing rock quarry, where a location has been designated by the City of Patterson. The location noted does not have the Corcoran Clay Layer (an impervious layer separating the potable and non-potable water tables), and instead infiltrates directly into the lower aquifer. The overall Zacharias Master Planning Area will have an annual runoff of 604 acre-feet per year, or 0.539 million gallons per day. The vast majority of this stormwater will be recharged through the Recharge Basin Facility.

The project area facilities provided will be subject to the most up-to-date version of the City of Patterson's Multi-Agency Post Construction Manual, and the corresponding Phase II Permit requirements for stormwater. The developers for each project area will be responsible for meeting these requirements within their project areas (Zacharias Ranch, TPF Development, Keystone Ranch, Lakeside Hills, and Ivy Rose Gardens Planning Areas) and maintaining such facilities as required.

The Storm Drain Master Plan for the project area storm drain facilities is shown in Section 2, Project Description, Exhibit 2-9a. The FEMA Solution Basin and corresponding facilities is shown on Exhibit 2-9b, and the recharge Basin Facility and corresponding force main is shown on Exhibit 2-9c.

#### **Analysis**

Stormwater within the Zacharias planning area up to the 100-year event would be retained on-site and/or pumped up to a newly established groundwater recharge basin. The planning area would have a series of basins sized to accommodate the 10-year runoff volume for detention basins and the 50-year runoff volume for retention basins, per City of Patterson flood control requirements. Runoff would be conveyed via storm drains within 48 hours to two centralized lake features that would be sized to accommodate the 50-year runoff volume. In a 100-year event, runoff beyond the 50-year holding capacity would be conveyed from the lakes via pumping approximately 2 miles west, upslope along Zacharias Road, to the off-site recharge basin.

For the Zacharias planning area, all stormwater runoff up to the 100-year event would be retained on-site and/or pumped to the planned recharge basin within a new drainage system, which would result in less-than-significant impacts to flooding potential. However, the proposed stormwater drainage system in the Zacharias planning area includes two lakes that would be fitted with pumps with the capacity to move stormwater runoff greater than the 50-year storage capacity of the lakes to the upslope recharge basin. A pump system failure could constitute a significant impact to on- and/or off-site flooding. The following mitigation measure requires the Zacharias planning area to develop an emergency action plan for pump failure.

Mitigation Measure HYD-3a requires the first Zacharias applicant to develop an emergency action plan for pump failure to prevent downstream inundation. Implementation of Mitigation Measure HYD-3a would reduce the potential impact of flooding in the Zacharia planning area to a less than significant level.

### *Baldwin Master Plan*

In the Baldwin planning area, storm drains, inlets, and underground piping would convey runoff to stormwater basins within the project site. The basins will be sized to accommodate the 10-year runoff volume per City of Patterson flood control requirements and would connect to the existing municipal storm drainage system.

### **On-site Flooding**

The proposed project would increase impervious surfaces within the project site by as much as 460 acres and would build storm drain networks consistent with the new project configuration. As discussed in Impact HYD-2, preliminary drainage plans indicate that stormwater runoff in the Zacharias planning area will be retained or detained in a series of on-site bioswales, basins and lakes sized to accommodate a 100-year flood event, and in the Baldwin planning area a basin would accommodate a 10-year flood event and CTE CAL, Inc. performed percolation tests, in accordance with Stanislaus County requirements for preparing and pre-saturating the soil in the test holes, to develop recommended drainage design infiltration rates in the proposed Zacharias planning area for the detention/retention basins, lakes, flood control basin and recharge basin. Drainage infrastructure for the project site will be completely new and designed for a capacity specific to meet the needs of the project site and in compliance with City of Patterson flood control requirements.

### *Zacharias Master Plan*

Portions of the Zacharias planning area are designated as FEMA Zone AO, which is defined as subject to flood depths of 1 foot in a 100-year flood event (1 percent annual chance flood hazard). A FEMA Letter of Map Revision (LOMR) for the Villages of Patterson community, located to the east of the planning area across State Route 33 was submitted, and a revision approved (dated August 3, 2018), to change the FEMA designation for the community from Zone AO to Zone X (shaded), which removed it from the 100-year flood hazard area.

The Villages of Patterson remapping effort suggested that the Zacharias planning area subject to FEMA Zone AO would also be substantially reduced as a result of additional modeling that would show fewer flooding effects than the currently effective FEMA flood map of the area. New modeling was conducted that focused on flooding potential to the Zacharias planning area. Results estimated that flows above 1,600 cfs would overtop Del Puerto Creek to the south toward the planning area; the 100-year overflow volume was estimated as 182 AF. Overflows onto the south overbank area were predicted to be generally well-dispersed over the relatively uniform terrain with maximum flood depths generally less than 2 feet.

A proposed flood control retention basin along the Del Puerto Creek south overbank flow path would consist of an excavated area immediately north of Zacharias Road, located within the flow path and sized to retain the 182 AF of overflow from Del Puerto Creek that is predicted to occur during the 100-year flood event. The basin would cover an area of approximately 27 acres and would be sized to yield a total storage volume of approximately 189 AF with one foot of free board. Berms and swales would be utilized to hold overbank flows to the north of Zacharias Road and direct flows into the flood control basin. Interception of overbank flow would essentially eliminate the flood hazard from Del Puerto Creek within the Zacharias planning area and would have the

collateral benefit of removing the same flood hazard from existing portions of the City to the south and east, a net improvement over existing conditions.

#### *Baldwin Master Plan*

The vast majority of the Baldwin planning area lies outside of any FEMA flood designation; the eastern edge of the planning area falls just within the western edge of a predicted Salado Creek Zone X area, defined as an area with 0.2% annual chance (500-year) flood hazard. Baldwin Road would be improved along the eastern edge of the planning area to accommodate planned traffic patterns (AMG, 2020), which would serve to eliminate the potential for Zone X flows to impact the area.

#### **Off-site Flooding Potential**

##### *Zacharias Master Plan*

In the Zacharias planning area, all stormwater up to the 100-yr event would be detained, retained and/or pumped to the recharge basin (Debler and Chapman, 2020), which would result in very little to no runoff leaving the site; this would improve downstream conditions relative to current conditions.

The proposed flood control basin would reduce the potential for flooding from Del Puerto Creek overbank flow into the project area as well into as existing portions of the City to the south and east, as described above. A planned FEMA LOMR study and application is expected to result in removal of all Zone AO areas within the Zacharias planning area, as well as portions of the City to the south and east, from the FEMA FIRM.

##### *Baldwin Master Plan*

In the Baldwin planning area, all stormwater up to the 10-year event would be detained/retained on-site in compliance with City requirements and then would drain north through the existing storm drain/irrigation lateral along Baldwin Road to Sperry Avenue, which could result in a significant impact to the downstream storm drain system, as existing Salado Creek capacity is limited from the Delta Mendota Canal north to the southern limit of existing residential development. Implementation of site design and treatment measures mandated by the Phase II Permit and the City would have the effect of reducing and attenuating volumes and rates of runoff.

Mitigation Measure HYD-3b requires applicants to prepare and submit drainage plans that demonstrate that new development does not create downstream flooding problems. Implementation of Mitigation Measure HYD-3b would reduce the potential impact of stormwater runoff from the Baldwin planning area to the downstream storm drain system to a less than significant level.

#### *Summary*

In summary, based on the discussion above, the net effect of the project would be to:

- Installation of an all new stormwater drainage system that meets or exceeds City flood control requirements and reduces the impact of on-site flooding to a less-than-significant level.

- In the Zacharias planning area, all stormwater up to the 100-yr event would be detained, retained and/or pumped to a recharge basin, thus no water would be expected to leave the site via overland flow. This stormwater plan complies with and exceeds City flood control requirements and would result in improved conditions downstream relative to current conditions.
  - Implementation of mitigation measure HYD-3a in support of a pump failure action plan would bring potential impacts to a less-than-significant level.
- The proposed flood basin would be designed to collect the Del Puerto 100-yr overbank flow event, thus effectively reducing the potential for flooding to the Zacharias planning area to a less-than-significant level and resulting in a net improvement to flood conditions within the City areas to the south-southwest of the planning area.
- In the Baldwin planning area, all stormwater up to the 10-yr event would be detained on-site in compliance with City flood control requirements and then released to City stormwater system.
  - Implementation of Mitigation Measure HYD-3b in support of detention/retention and/or metering of stormwater runoff up to the 100-year event would bring potential impacts to a less-than-significant level.

As summarized above, new stormwater infrastructure compliant with City requirements would eliminate potential concerns for exceedance of storm drain system capacity on the project site and a flood control basin would eliminate potential on-site or off-site flooding concerns. Implementation of the above actions in compliance with City requirements would reduce potential drainage and flooding impacts to a less than significant level.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

**MM HYD-3a** Prior to operation of the stormwater lift station that would serve the Zacharias Master Plan, the applicant shall prepare and submit an emergency action plan for lift station failure to the City of Patterson for review and approval. The plan shall outline pump and power redundancy plans, potential flow routing, and other potential actions to be taken if pump failure occurs. The approved plan shall be implemented.

**MM HYD-3b** Prior to issuance of a grading permit for the Baldwin Master Plan, the project applicant shall submit stormwater calculations to the City for approval that confirm that increases in downstream flow rates for storms greater than the 10-year event up to the 100-year event would not cause downstream flooding issues, or, submit plans for adequate additional detention, retention and/or metering to mitigate stormwater runoff to comply with the City Storm Drain Master Plan up to the 100-year peak flow event.

### ***Level of Significance After Mitigation***

Less than significant impact.

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## Drainage and Risk of Pollutants

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**Impact HYD-4: Buildout of the Master Plans would not result in release of pollutants due.**

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### ***Impact Analysis***

This impact addresses threshold of significance questions (d), focused on the potential for development activities to increase the risk of release of pollutants due to susceptibility to downstream flooding, erosion, or elevated pollutant levels as a result of increased impervious surfaces, which could lead to an increase in pollutant-laden runoff volume or peak flows.

Construction-related impacts relating to erosion or siltation both on and off-site would be avoided in compliance with the SWPPP as discussed in Impact HYD-1. Post-construction implementation of stormwater treatment BMPs in compliance with the Phase II Permit are also discussed in Impact HYD-1. The new stormwater drainage system will be designed to capture and detain all runoff from the project area in compliance with City of Patterson standards as discussed in Impact HYD-3. Furthermore, implementation of the flood control basin as discussed in Impact HYD-3 would eliminate the risk of project area inundation from overbank flooding from Del Puerto Creek. Implementation of these required strategies would result in avoidance of impacts related to increased pollutant levels in flood hazard zones. Flood hazard impacts causing an increased risk of pollutants associated with development in this area would be less than significant.

### ***Level of Significance Before Mitigation***

Less than significant impact.

### ***Mitigation Measures***

No mitigation is required.

### ***Level of Significance After Mitigation***

Less than significant impact.

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## Conflicts With Water Management Plans

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**Impact HYD-5: Buildout of the Master Plans would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

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### ***Impact Analysis***

This impact addresses conflicts with an adopted water management plan.

### ***Water Quality Control Plan***

The currently effective Central Valley RWQCB Basin Plan (2018) includes the Delta-Mendota Canal Hydrologic Unit 541.10 Patterson, a sub-basin of the San Joaquin River Hydrologic Unit. Beneficial uses designated for the Patterson sub-unit include municipal and domestic supply, irrigation, stock watering, recreation-1 (contact), recreation-2 (other noncontact), freshwater habitat (warm), and wildlife habitat. The Basin Plan designates or establishes such beneficial uses of waters to be protected, water quality objectives to protect those uses, and a program of implementation needed for achieving the objectives. Water quality objectives are defined as limits or levels of water quality

constituents and characteristics established for reasonable protection of beneficial uses or prevention of nuisance.

The implementation of a SWPPP during construction activities in compliance with the NPDES Construction Permit as described in Impact HYD-1 and implementation of a SWQMP in compliance with the Phase II permit as described in Impact HYD-1 brings the project into compliance with the Basin Plan and as such does not conflict with or obstruct implementation of a water quality control plan, and the potential impact would be less than significant.

### ***Sustainable Groundwater Management Plan***

The State of California established a legislative framework for sustainable groundwater management, the Sustainable Groundwater Management Act (SGMA), that became law on September 16, 2014. SGMA requires governments and water agencies to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge within a specified timeframe. GSAs within the Delta-Mendota Subbasin, which was listed as critically overdrafted, were required to submit GSPs by January 2020.

The City of Patterson created a GSA and joined with other GSAs to form the Northern & Central Delta-Mendota GSP Group. A draft GSP was submitted to the state in January 2020 that outlines projects and management actions to halt long-term declines in groundwater storage in both the upper and lower aquifers as discussed in Impact HYD-2. As also discussed in Impact HYD-2, project implementation of an infiltration basin to recharge stormwater into the lower aquifer, and a significant decrease in the amount of pumping from the upper aquifer support, the goals of the GSP. The project is in compliance with City and SMGA requirements, and as such would have a less than significant impact on the sustainable groundwater management plan.

### ***Level of Significance Before Mitigation***

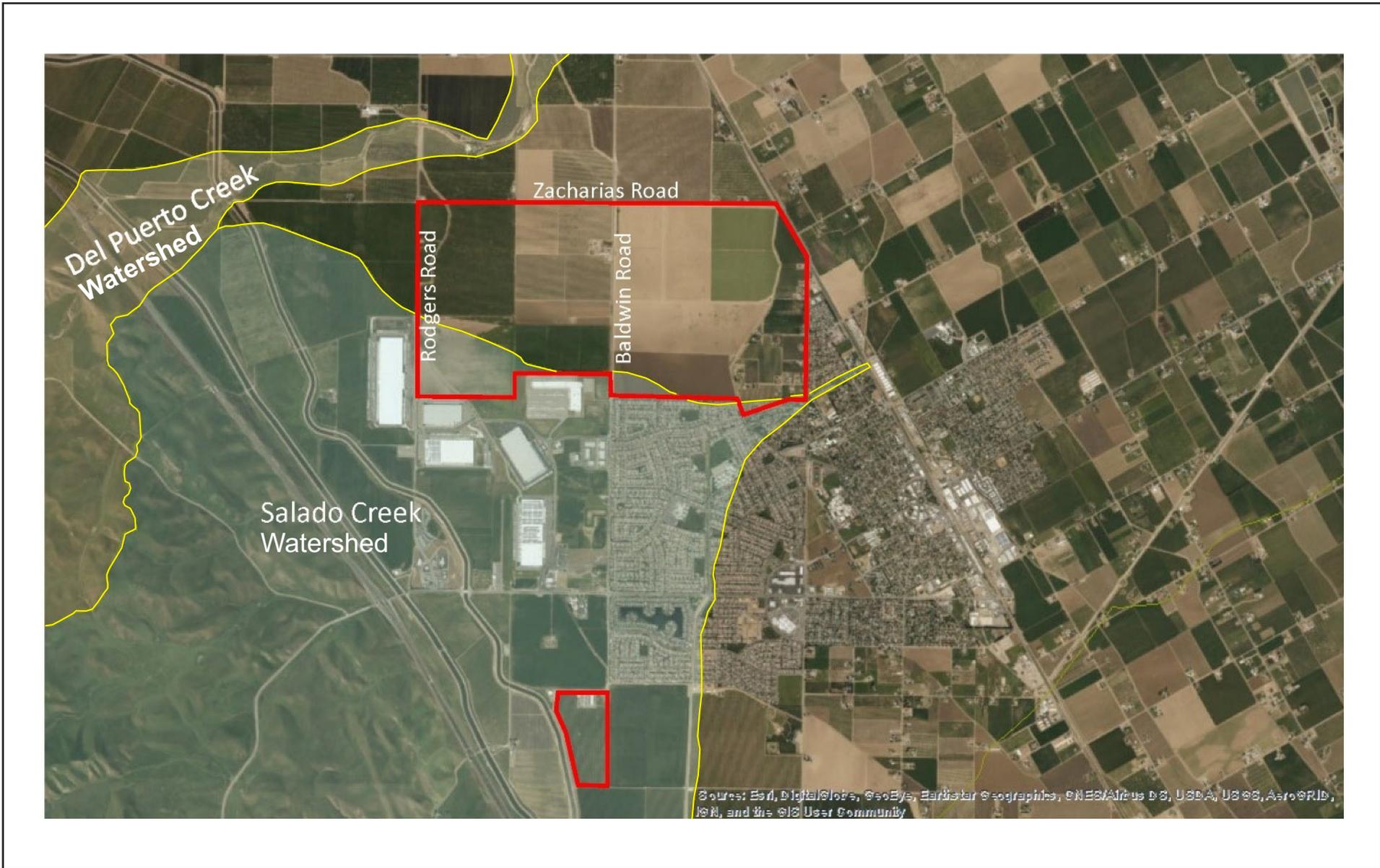
Less than significant impact.

### ***Mitigation Measures***

No mitigation is required.

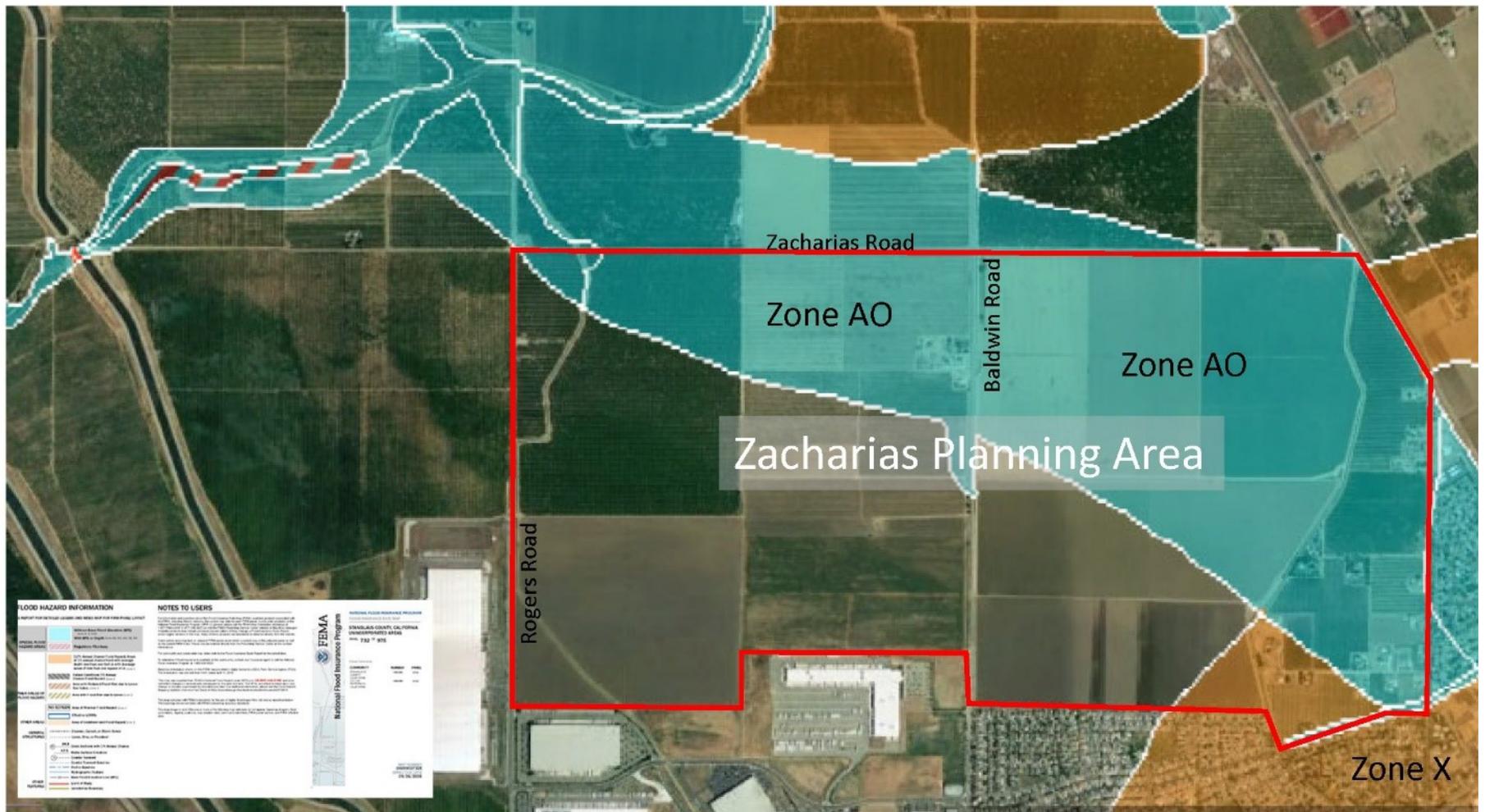
### ***Level of Significance After Mitigation***

Less than significant impact.



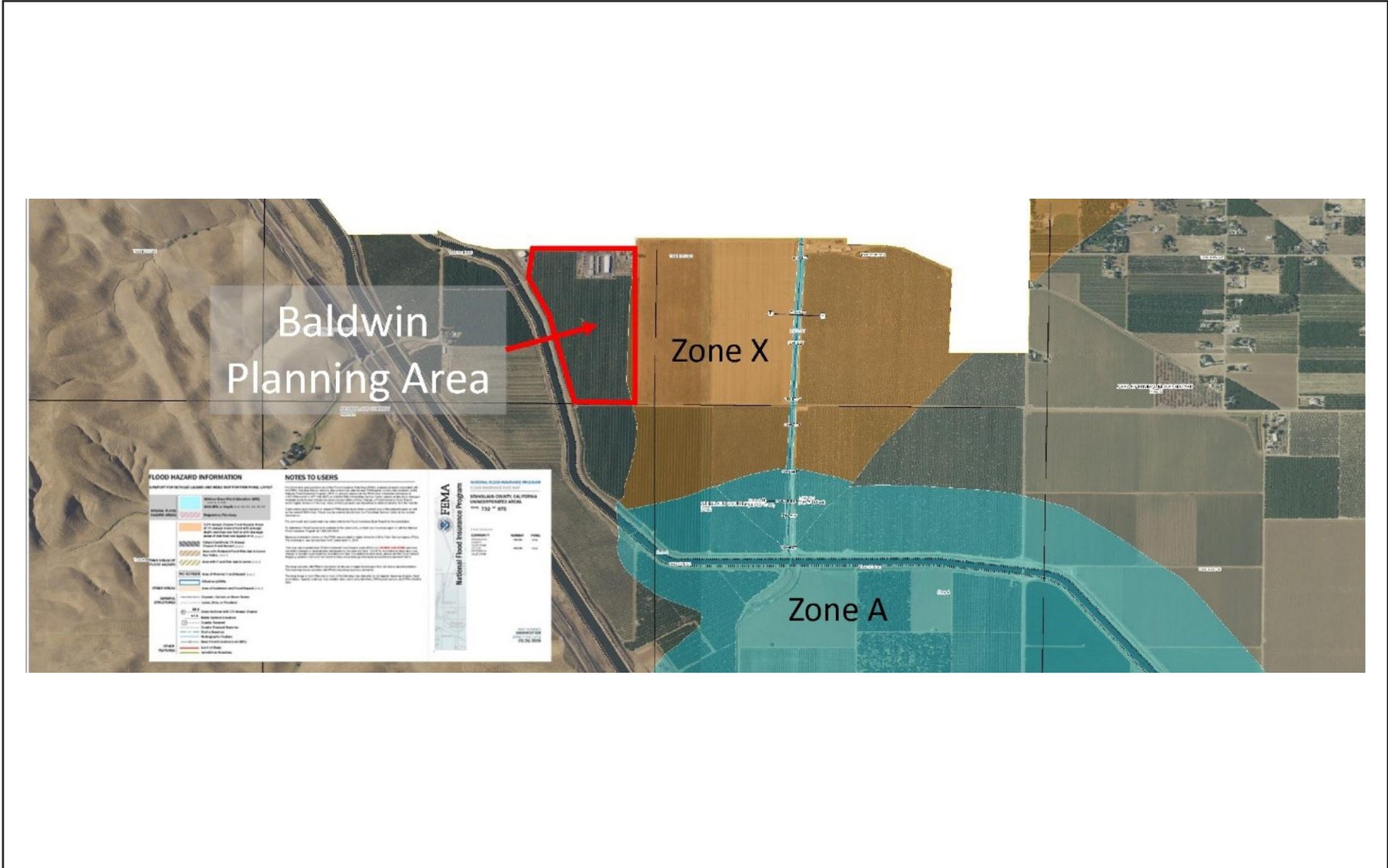
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## 3.10 - Land Use

### 3.10.1 - Introduction

This section describes the existing land use context and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on site reconnaissance, review of the City of Patterson General Plan, the Patterson Municipal Code, the Stanislaus County General Plan, and Stanislaus Local Agency Formation Commission (LAFCo) procedures, and the proposed Baldwin and Zacharias Master Plans.

### 3.10.2 - Environmental Setting

#### Land Use

##### ***Baldwin Master Plan***

The Baldwin Master Plan area contain agricultural land (orchards). A cluster of residential and agricultural buildings is present at the terminus of Baldwin Road. Exhibit 2-3 provides a photograph of this area.

##### ***Zacharias Master Plan***

The area west of Baldwin Road contains agricultural land (orchards and row crops). A cluster of residential and agricultural buildings is present along Baldwin Avenue. Lateral Six South, a Patterson Irrigation District (PID) canal, runs south-to-north near Rogers Road.

The area east of Baldwin Road contains agricultural land (row crops) west of the PID Lateral M canal and the “Ranchette” residential area on the east side. PID Lateral Five South, an irrigation canal, runs south-to-north along Baldwin Road.

The approximately 137-acre Ranchette Triangle consists of 31 parcels, 24 of which support a residence. Of the 24 parcels with a residence, 15 of them are residential only (most of which are 1 acre or less). The largest parcels (4 acres or more) support most of the agricultural acreage. Six of the parcels totaling 47.73 acres are encumbered by active Williamson Act Contracts.

Exhibit 2-3 provides a photograph of this area.

#### ***Surrounding Area***

##### ***Baldwin Master Plan***

##### **West**

The Delta-Mendota Canal forms the western boundary of the Baldwin Master Plan area.

##### **North**

The City of Patterson Corporation Yard forms the northern boundary of the Baldwin Master Plan area.

##### **East**

Agricultural uses form the eastern boundary of the Baldwin Master Plan area.

### **South**

Agricultural uses form the southern boundary of the Baldwin Master Plan area.

#### *Zacharias Master Plan*

### **West**

Rogers Road, a partially improved two-lane road, forms the western boundary of the Zacharias Master Plan area. West of Rogers Road is the Arambel Business Park, which includes the Restoration Warehouse distribution center.

### **North**

Zacharias Road, a rural two-lane road, forms the northern boundary of the Zacharias Master Plan area. North of Zacharias Road is agricultural land.

### **East**

The California Northern Railroad tracks and Ward Avenue form the eastern boundary of the Zacharias Master Plan area. State Route 33 (SR-33), a two-lane state highway, parallels the east side of the tracks between Zacharias Road and Ward Avenue.

### **South**

Existing residential and the Keystone Pacific Business Park form the southern boundary of the Zacharias Master Plan area.

## **Land Use Designations**

### ***County of Stanislaus***

#### *Baldwin Master Plan*

The Stanislaus County General Plan designates the Baldwin Master Plan area as “Agriculture.” The Stanislaus County Zoning Ordinances zones the Baldwin Master Plan area as “General Agriculture (A-2).”

#### *Zacharias Master Plan*

The Stanislaus County General Plan designates the area west of the PID canal as “Agriculture.” The Stanislaus County General Plan designates the area east of the canal as “Urban Transition.”

The Stanislaus County Zoning Ordinances zones the area west of the PID canal as “General Agriculture (A-2).” The Stanislaus County Zoning Ordinances zones the area east of the PID canal as “General Agriculture (A-2-10).”

### ***City of Patterson***

The City of Patterson General Plan designates the Master Plan areas as “Low Density Residential,” which is a non-binding designation. This is also a “placeholder” land use designation the City has assigned to unincorporated areas around the Patterson city limits and does not necessarily signify that the City intends for all of this land to be developed as low density residential.

### ***Sphere of Influence***

The approximately 137-acre Ranchette Triangle is within the Patterson Sphere of Influence. All other portions of the Master Plan area are outside the Sphere of Influence.

### **3.10.3 - Regulatory Framework**

#### **Local**

##### ***City of Patterson***

###### *General Plan*

The City of Patterson General Plan provides a blueprint for growth within the Patterson city limits and Sphere of Influence. The General Plan was adopted by the Patterson City Council on November 30, 2010. The General Plan contains the following topical chapters: Land Use, Housing, Community Design, Economic Development, Circulation, Air Resources and Climate Change, Public Services, Parks, Recreation and Cultural Resources, Health and Safety (Noise, Safety), Natural Resources (Conservation and Open Space), and Administration and Implementation. The General Plan includes the goals, policies, standards, implementation programs, quantified objectives, a draft land use diagram, and a draft circulation plan diagram that constitute the formal policy of the City of Patterson for land use, development, and environmental quality.

###### *Municipal Code*

The Patterson Municipal Code establishes specific regulations for land use activities and development within the City of Patterson. Title 18, Zoning, contains the City of Patterson Zoning Code, which promotes and protects the public health, safety, peace, morals, comfort, convenience, and general welfare of the public, and insures the orderly development of the City.

##### ***Stanislaus Local Agency Formation Commission***

Stanislaus LAFCo reviews proposals for the formation of new local governmental agencies and for changes in the organization of existing agencies with Stanislaus County. Stanislaus LAFCo regulates, through approval or denial, boundary changes proposed by other public agencies or individuals. Boundary changes are assessed against the criteria set forth in California Government Code Section 56668, which establishes factors LAFCo agencies must use in reviewing annexation proposals.

### **3.10.4 - Methodology**

FCS evaluated the potential for land use impacts through site reconnaissance and review of applicable land use policy documents. FCS personnel performed site reconnaissance on the Master Plan areas and surrounding land uses on multiple occasions in 2018. Photographs were taken of the Master Plan areas and surrounding land uses to document existing conditions. FCS reviewed the City of Patterson General Plan, the Patterson Municipal Code, and the Stanislaus County General Plan to identify applicable policies and provisions that pertain to the proposed Master Plans.

### 3.10.5 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether land use and planning impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- a) Physically divide an established community?
- b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Please note that the second threshold is evaluated in Impacts LU-2, LU-3, and LU-4 in the interests of distinguishing between the General Plan, Municipal Code, and LAFCo policy.

### 3.10.6 - Project Impacts Mitigation Measures

This section discusses potential impacts associated with the proposed Master Plan and provides mitigation measures where necessary.

#### Divide an Established Community

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**Impact LU-1:** Buildout of the proposed Master Plans would not physically divide an established community.

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#### *Impact Analysis*

This impact assesses whether the proposed Master Plans would physically divide an established community. For the purposes of this evaluation, an established community is defined as a grouping of occupied dwelling units inhabited by persons who would be involuntarily displaced by the buildout of the Master Plans.

#### *Baldwin Master Plan*

Buildout of the Master Plan would be limited to the Master Plan boundaries. No off-site improvements would be required that would have the potential to divide an established community. The existing cluster of structures would be removed. This cluster would not constitute an "established community." Moreover, their removal would be at the behest of their owner. Impacts would be less than significant.

#### *Zacharias Master Plan*

The 1,160 acres of the Master Plan area that excludes the Ranchettes contains agricultural land. There are two clusters of residential and agricultural structures within this area that would ultimately be removed as the Master Plan builds out. These two clusters of structures would not constitute an "established community." Moreover, their removal would be at the behest of their owners. Thus, buildout of this portion of the Master Plan area would not constitute the division of an established community.

The 137-acre Ranchette Triangle contains more than 30 separate parcels. The Master Plan allows property owners to continue existing land use activities after annexation. Thus, any change in land

use activities (including development to a higher and better use) would be the prerogative of the property owner.

The East-West Connection would cross through the Ranchette area. The alignment of this road follows an existing property line (west of Ward Avenue) and through a vacant land associated with a medical office building (east of Ward Avenue). The Master Plan applicant team have met with the affected property owners and found that there is preliminary support for this connection. The development of this roadway would not require removal of any structures. Moreover, it would allow for a direct connection from Ward Avenue and SR-33 to the Zacharias Master Plan area, which would improve circulation within Patterson. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

**General Plan Consistency**

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<b>Impact LU-2:</b>	<b>Buildout of the proposed Master Plans would not conflict with the City of Patterson General Plan.</b>
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**Impact Analysis**

This impact assesses whether the proposed Master Plans would conflict with the General Plan.

**Baldwin and Zacharias Master Plan**

*General Plan Amendment*

The Master Plan areas are currently located outside the City of Patterson’s Sphere of Influence. As part of the project’s discretionary approvals, a General Plan Amendment would be processed to expand the City’s Sphere of Influence to encompass the 1,286-gross-acre Master Plan areas to be co-terminus with the proposed annexation request. This General Plan Amendment is expected to occur concurrently with the annexation/pre-zoning approvals. Note that Stanislaus LAFCo would also be required to approve the Sphere of Influence expansion request.

This General Plan Amendment would ensure that the City of Patterson’s jurisdictional boundaries are in conformance with state requirements. Furthermore, because the General Plan contemplates annexation of the entire project site at some future, undetermined date, adjusting the Sphere of Influence to be co-terminus with expanded city limits would not be in conflict with any aspect of the General Plan. Impacts would be less than significant.

**General Plan Goals and Policies Consistency Analysis**

Table 3.10-1 summarizes each Master Plan’s consistency with all applicable goals and policies of the General Plan. As shown in the table, the proposed Master Plan would be consistent with all applicable goals and policies of the General Plan. Impacts would be less than significant.

**Table 3.10-1: General Plan Consistency Analysis**

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Goal LU-1	To provide for orderly, well-planned, and balanced growth consistent with the limits imposed by the city’s infrastructure and environmental constraints.	<b>Consistent:</b> The Master Plan contemplates the development of 305 dwelling units, parks, and infrastructure on 66 acres. The Master Plan would guide the buildout of the site over a period of 20 years. Therefore, it would be considered orderly, well-planned and balanced growth.	<b>Consistent:</b> The Master Plan contemplates the development of 4,781 dwelling units, 7.76 million square feet of non-residential uses, as well as schools, parks, and infrastructure on 1,161 acres. The Master Plan would guide the buildout of the site over a period of 20 years. Therefore, it would be considered orderly, well-planned and balanced growth.
Policy LU-1.1	Development strategy. The development strategy embodied in the Patterson General Plan is based on the premise that the outward urban expansion of the City will occur through the incremental annexation and development of “complete” neighborhoods, incorporating the following characteristics: a. A mix of housing products and densities serving the broadest range of households, incomes and ages; b. A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences; c. Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;	<b>Consistent:</b> The Master Plan allows a mix of single-family housing products, parks, and a trail system. Because the Master Plan would represent the southern-most residential development area in the City of Patterson, non-residential uses are neither feasible nor desirable because of their distance from main thoroughfares	<b>Consistent:</b> The Master Plan allows a range of housing products including single-family and multi-family, light industrial uses, commercial uses, a lakeside mixed use activity area, two schools, parks, and a trail system.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	<ul style="list-style-type: none"> <li>d. A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;</li> <li>e. Short blocks with a substantial tree canopy shading the street and sidewalk;</li> <li>f. Connectivity to surrounding neighborhoods, regional retail centers and employment;</li> <li>g. A sense of personal safety;</li> <li>h. Elements that foster the sustainable use of scarce or non-renewable resources.</li> <li>i. Mixed-use development in which complementary uses are placed on a single building site one above the other (vertically) or in close proximity (horizontally).</li> </ul>		
Policy LU-1.2	Residential expansion areas. To achieve the objectives described in Policy LU-1.1, the General Plan applies the Low Density Residential designation to areas contemplated for new, residential development outside the current (2010) City limits. In such instances Low Density Residential designation is considered a “holding” category which will apply until such time as a general plan amendment accompanied by a planned development is approved by the City, as required by Policy LU-1.3.	<b>Consistent:</b> The Master Plan proposes to amend the existing Low Density Residential designation to allow development of the proposed uses.	<b>Consistent:</b> The Master Plan proposes to amend the existing Low Density Residential designation to allow development of the proposed uses.
Policy LU-1.3	Planned development requirement -- Residential Expansion Areas. Development of areas outside the current (2010) City limits designated	<b>Consistent:</b> The Master Plan contains the following components listed below:	<b>Consistent:</b> The Master Plan contains the following components listed below:

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	Low Density Residential shall be accompanied by an application for a general plan amendment, tentative subdivision map, pre-zoning and reorganization, as necessary, consistent with a planned development which sets forth the following:		
a.	<p>Land use plan. Each planned development application shall include a land use diagram that clearly identifies the uses allowed in each neighborhood based on the land use designations described in Part I – Land Use Diagrams and Standards. The qualities desired in residential expansion areas shall include, but are not limited to, the following:</p> <ul style="list-style-type: none"> <li>• A mix of housing products and densities serving the broadest range of households, incomes and ages;</li> <li>• A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;</li> <li>• Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;</li> <li>• A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;</li> <li>• Short blocks with a substantial tree canopy shading the street and sidewalk;</li> </ul>	A land use plan with diagram	A land use plan with diagram

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	<ul style="list-style-type: none"> <li>● Connectivity to surrounding neighborhoods, regional retail centers and employment;</li> <li>● A sense of personal safety;</li> <li>● Elements that foster the sustainable use of scarce or non-renewable resources;</li> </ul> <p>The appropriate qualities for a given project will be determined by the City Council on a case-by-case basis consistent with the policies and implementation measures of the General Plan.</p>		
b.	<p>A description of housing products. Each planned development application shall describe the range of housing products allowed within the project. The description shall include:</p> <ol style="list-style-type: none"> <li>i. Building type (single-family detached, single family attached, apartments, townhome, etc.);</li> <li>ii. Gross residential density for each product type;</li> <li>iii. Building elevations;</li> <li>iv. Number of bedrooms;</li> <li>v. Colors and materials;</li> <li>vi. Tenure (for-sale, for rent);</li> <li>vii. Target income group by product type.</li> </ol>	A description of housing products	A description of housing products
c.	<p>General development standards. These standards shall be applied to all development regardless of land use category and shall address such topics as site access, energy efficiency and sustainability, fences/screening, noise mitigation, outdoor lighting standards, and the placement of utilities.</p>	General development standards	General development standards
d.	Land use-specific development	Land use-specific development	Land use-specific development

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	standards. The planned development application shall describe the site development standards to be applied to new development by each land use category.	standards	standards
e.	Services and infrastructure plans. Infrastructure plans for water supply, wastewater collection and treatment, storm water runoff, and circulation shall be required. In addition, the planned development shall describe the provision of necessary facilities, equipment and staffing for police and fire protection, parks and recreation, and schools.	Services and infrastructure plans	Services and infrastructure plans
f.	Infrastructure financing program. Each planned development shall be accompanied by an infrastructure financing program which sets forth the method of revenue generation (e.g., special district, etc.), the obligations of the project and the City towards the cost of infrastructure necessary to serve the project.	Infrastructure financing program	Infrastructure financing program
g.	Phasing plan. Each planned development application shall be accompanied by a phasing plan which describes the following: <ul style="list-style-type: none"> <li>i. The boundaries of each phase reflecting a logical order of development;</li> <li>ii. The number of dwelling units in each phase by tenure and target income group, and the acreage and estimated building floor area for each non-residential land use type;</li> <li>iii. Infrastructure plans for each phase, including</li> </ul>	Phasing plan	Phasing plan

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	water supply, wastewater collection, storm drainage and circulation, along with the location and acreage designated for other public facilities required for each phase. Such facilities may include, but is not limited to, school sites, police and fire protection facilities and parks.		
LU-1.5	Multiple applications. The City recognizes that it may be desirable to allow for the consideration of multiple residential projects under a single planned development project. In allowing such combinations, no remnant areas within a residential expansion area shall be excluded, and each must be approved by the City prior to development.	<b>Not Applicable:</b> The Baldwin Master Plan consists of a single application.	<b>Consistent:</b> The Zacharias Master Plan consists of multiple applications. The Master Plan includes the Ranchette Triangle even though those property owners are not parties to the application in the interests of avoiding the exclusion of remnant areas.
Policy LU-1.6	Small town character. The City shall seek to preserve Patterson’s traditional small-town qualities and agricultural heritage, while increasing its residential and employment base.	<b>Consistent:</b> The Master Plan proposes a ‘Modern Mission’ design theme that incorporates historic and contemporary elements that are locally recognizable as unique to Patterson. This is consistent with the objective of preserving small-town qualities and agricultural heritage while increasing its residential base.	<b>Consistent:</b> The Master Plan proposes a ‘Modern Mission’ design theme that incorporates historic and contemporary elements that are locally recognizable as unique to Patterson. This is consistent with the objective of preserving small-town qualities and agricultural heritage while increasing its residential and employment base.
Policy LU-1.7	Preferences for the timing of urban development. In general, the preferred timing of urban development in accordance with the General Plan is as follows: a. First Priority—Vacant or underutilized areas within the current City limits; b. Second Priority—Vacant or underutilized areas within the City’s current adopted	<b>Consistent:</b> The Master Plan area is outside the current city limits and Sphere of Influence and, therefore, would be considered “Third Priority.” There are no existing properly zoned parcels within the city limits or Sphere of Influence that are large enough or available for the proposed Master Plan.	<b>Consistent:</b> The Master Plan is outside the current city limits and Sphere of Influence and, therefore, would be considered “Third Priority.” There are no existing properly zoned parcels within the city limits or Sphere of Influence that are large enough or available for the proposed Master Plan.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	sphere of influence; c. Third priority—Vacant or underutilized areas within the General Plan area.		
Policy LU-8	Managing the pace of development. The City shall link the rate of growth in Patterson to the provision of adequate services and infrastructure, including schools. The City shall, through specific plans and/or planned development plans for major projects, ensure that urban development proceeds in an orderly fashion and in pace with the expansion of public facilities and services.	<b>Consistent:</b> The proposed Master Plan includes a planned development that would ensure development proceeds in an orderly fashion and in pace with economic conditions. The project includes the development of urban roadways and utility infrastructure. Furthermore, this EIR ensures that adequate services and infrastructure would be available to serve the proposed Master Plan. As such, the proposed Master Plan would be served with adequate facilities and services, and therefore, would constitute orderly growth.	<b>Consistent:</b> The proposed Master Plan includes a planned development that would ensure development proceeds in an orderly fashion and in pace with economic conditions. The project includes the development of urban roadways and utility infrastructure. Furthermore, this EIR ensures that adequate services and infrastructure would be available to serve the proposed Master Plan. As such, the proposed Master Plan would be served with adequate facilities and services, and therefore, would constitute orderly growth.
Policy LU-1.9	Managing the relationship between jobs and housing. The City shall monitor residential and non-residential development and encourage adjustments as necessary in land use designations and the rate of project approvals to promote a reasonable citywide balance between new employment-generating development and housing development and to minimize traffic impacts.	<b>Consistent:</b> The proposed Baldwin Master Plan would develop 305 dwelling units. The Master Plan would add 1,203 residents at buildout. The Master Plan’s residential uses are well suited to serve West Patterson Business Park and Arambel Business Park employees and, thus, facilitate jobs-housing balance.	<b>Consistent:</b> The proposed Master Plan would develop up to 4,781 dwelling units and 7.76 million square feet of non-residential uses. The Master Plan would add 18,785 residents and 8,670 full-time jobs at buildout. The Master Plan’s residential uses would be well suited for its own employees, as well as those from the nearby West Patterson Business Park and Arambel Business Park, which would facilitate jobs-housing balance.
Policy LU-1.10	Fiscal impact of new development. The City shall use a fiscal impact model to inform decisions relating to new major development projects as defined by Municipal Code Section 18.08.020 and other new development as determined by	<b>Consistent:</b> A fiscal impact analysis was prepared for the proposed Master Plan in accordance with the requirements of Municipal Code Section 18.08.020.	<b>Consistent:</b> A fiscal impact analysis was prepared for the proposed Master Plan in accordance with the requirements of Municipal Code Section 18.08.020.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	the City Council. The purpose of a fiscal impact analysis is such and to ensure that the designation of areas for urban development and the approval of development projects do not hinder efforts to maintain a positive fiscal balance for the City.		
Policy LU-1.11	Protect the downtown. The City shall promote growth that complements, and does not adversely compete with, the downtown.	<b>Consistent:</b> The proposed Master Plan is located on the southwest side of Patterson, more than 2.0 miles from downtown. The proposed Maser Plan is entirely residential and, thus, would generate new demand for local retail and restaurants including those provided by businesses located downtown.	<b>Consistent:</b> The proposed Master Plan is located on the northwest side of Patterson, with the core area more than 1.7 miles from downtown. The proposed Master Plan would have a commercial area located at Baldwin Road/Zacharias Road and a lakeside mixed use activity area. The former area would be expected to be a neighborhood serving retail center, while the latter area would be an outdoor 'lifestyle' center that would be unique to Patterson. Both of these commercial uses would be complementary to downtown and therefore, further the policy of protecting the downtown area.
Policy LU-1.12	Status of land prior to urban development. Land within the General Plan Area shall ultimately be developed to urban standards described in Part I – Land Use and Development Standards. Pending connection to City services, such land shall remain in agricultural, open space, or other low intensity uses.	<b>Consistent:</b> The proposed Master Plan would be built in phases over a 20-year period. The proposed Master Plan allows leaving portions of the project site in agricultural production until economic conditions determine that transition to urban uses is warranted.	<b>Consistent:</b> The proposed Master Plan would be built in phases over a 20-year period. The proposed Master Plan allows leaving portions of the project site in agricultural production until economic conditions determine that transition to urban uses is warranted.
Policy LU-1.15	Provision of public services. Consistent with the policies and implementation measures of this General Plan, the City shall consider the adequacy of	<b>Consistent:</b> This Draft EIR considers the adequacy of public services to serve the proposed Master Plan consistent with the policies	<b>Consistent:</b> This Draft EIR considers the adequacy of public services to serve the proposed Master Plan consistent with the policies

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	public services prior to approving new development.	and implementation measures of the General Plan.	and implementation measures of the General Plan.
Goal LU-2	To designate adequate land in a range of residential densities to address the housing needs of all income groups expected to reside in Patterson.	<b>Consistent:</b> The proposed Master Plan would annex 66 acres of land for residential development into the Patterson city limits for the development of 305 dwelling units.	<b>Consistent:</b> The proposed Master Plan would annex 1,186 acres of land for residential development into the Patterson city limits for the development of 4,781 dwelling units. Housing products would include low-density, medium density, and high density residential.
Policy LU-2.1	Adequate supply of residential land. The City shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate projected household growth, maintain normal vacancy rates, and minimize residential land costs.	<b>Consistent:</b> The proposed Master Plan would annex 66 acres of land for residential development into the Patterson city limits for the development of 305 dwelling units.	<b>Consistent:</b> The proposed Master Plan would annex 1,186 acres of land for residential development into the Patterson city limits for the development of 4,781 dwelling units.
Policy LU-2.2	Affordable housing. The City shall promote the development of affordable housing to meet the needs of low -and moderate-income households.	<b>Consistent:</b> The proposed Master Plan would provide inclusionary affordable housing or in lieu of fees to the City of Patterson.	<b>Consistent:</b> The proposed Master Plan would provide inclusionary affordable housing.
Policy LU-2.3	Neighborhood centers. Generally, higher density housing should be located in areas served by the full range of urban services, within walking distance of neighborhood shopping areas.	<b>Not Applicable:</b> The Baldwin Master Plan does not propose high density residential uses.	<b>Consistent:</b> The Zacharias Master Plan proposed a lakeside mixed use activity center where the higher density residential uses would be located.
Policy LU-2.4	Protect existing neighborhoods. The City shall promote the preservation of existing stable residential neighborhoods	<b>Not Applicable:</b> The Baldwin Master Plan does not abut any existing neighborhoods.	<b>Consistent:</b> The Zacharias Master Plan encompasses the Ranchette Triangle and abuts the Patterson Gardens neighborhood to the south. The Master Plan does not propose connections to existing residential streets within these areas and, thus, avoids conflicts associated with cut-through traffic.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Policy LU-2.5	Residential development and public services. The City shall ensure that new residential development pays its share in financing public facilities and services.	<b>Consistent:</b> The proposed Master Plan would pay the full cost of infrastructure necessary to provide adequate levels of service delivery.	<b>Consistent:</b> The proposed Master Plan would pay the full cost of infrastructure necessary to provide adequate levels of service delivery.
Goal LU-3	To designate adequate land and provide support for the development of commercial uses providing goods and services to Patterson residents and to become the commercial service hub for western Stanislaus County.	<b>Not Applicable:</b> This Master Plan does not propose any commercial uses.	<b>Consistent:</b> The proposed Master Plan contemplates approximately 350,000 square feet of commercial uses at the intersection of Baldwin Road/Zacharias Road. The Master Plan would promote the establishment of Patterson as the commercial service hub for western Stanislaus County.
Policy LU-3.1	Promotion of commercial sector. The City shall promote, and assist with the maintenance and expansion of, Patterson’s commercial sector to meet the needs of Patterson residents, employees, and visitors. The City shall continue to gather market information to inform decisions regarding efforts to promote local businesses and attract new businesses.	<b>Not Applicable:</b> This Master Plan does not propose any commercial uses.	<b>Consistent:</b> The proposed Master Plan contemplates approximately 350,000 square feet of commercial uses at the intersection of Baldwin Road/Zacharias Road. As such, the proposed Master Plan would be well positioned to meet the needs of local residents, employees, and visitors, and attract new business to the Patterson area.
Policy LU-3.2	Retail development. The City shall promote the establishment, maintenance, and expansion of businesses in Patterson that generate high retail sales taxes as important contributors to the local economy.	<b>Not Applicable:</b> This Master Plan does not propose any commercial uses.	<b>Consistent:</b> The proposed Master Plan contemplates a commercial center at Baldwin Road/Zacharias Road that would create jobs and generate taxable sales.
Policy LU-3.3	Regional centers. The City shall encourage regional shopping malls/centers at sites capable of support by a full range of transportation options.	<b>Not Applicable:</b> This Master Plan does not propose any commercial uses.	<b>Consistent:</b> The proposed Master Plan contemplates a commercial center at Baldwin Road/Zacharias Road. This would be an intersection on the future South County Corridor.
Goal LU-7	To designate adequate land and provide support for light and heavy industrial uses that	<b>Not Applicable:</b> This Master Plan does not propose any light industrial uses.	<b>Consistent:</b> The proposed Master Plan contemplates approximately 6.9 million

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	create jobs and enhance the economy of Patterson.		square feet of light industrial uses
Policy LU-7.2	Location of industrial development. New industrial development shall be located along arterials with easy freeway or rail access and shall be served by full City services.	<b>Not Applicable:</b> This Master Plan does not propose any light industrial uses.	<b>Consistent:</b> The proposed master Plan contemplates approximately 6.9 million square feet of light industrial uses. The proposed Master Plan is immediately adjacent to Rogers Road and is within 1.5 miles of the I-5/Sperry Avenue interchange. Additionally, the light industrial area abuts Zacharias Road, which is contemplated to be the alignment of the future South County Corridor, which would have an interchange with I-5.
Policy LU-7.5	Clean industries. The City shall promote the development of clean industries that do not pose health risks associated with water and air pollution or potential leaks or spills.	<b>Not Applicable:</b> This Master Plan does not propose any light industrial uses.	<b>Consistent:</b> The proposed Master Plan contemplates a wide range of end uses for the proposed Master Plan, including research and development, manufacturing, software development, warehouse, and wholesale distribution. These industries typically do not use large quantities of hazardous materials, which limits the potential for air and water pollution and leaks or spills. Likewise, the proposed Master Plan prohibits industries such as chemical/ explosives manufacturing, refining, mining, and other uses that are typically associated with the use of large quantities of hazardous materials.
Goal LU-8	To designate adequate land for development of public and quasi-public uses to support existing and new residential, commercial, and industrial land uses.	<b>Consistent:</b> The proposed Master Plan contemplates parks and trails.	<b>Consistent:</b> The proposed Master Plan contemplates two schools, parks, trails, and a regional dual use flood control basin/recreation facility.
Goal CD-1	To promote the development of a coherent and distinctive physical form and structure	<b>Consistent:</b> The proposed Master Plan sets forth a distinctive 'Modern Mission'	<b>Consistent:</b> The proposed Master Plan sets forth a distinctive 'Modern Mission'

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	that reflects Patterson’s small-town qualities and agricultural heritage.	design theme that incorporates recognizable local elements, while also promoting a contemporary appearance. This is consistent with the objective of promoting a coherent and distinctive physical form and structure that reflects Patterson’s small-town qualities and agricultural heritage.	design theme that incorporates recognizable local elements, while also promoting a contemporary appearance. This is consistent with the objective of promoting a coherent and distinctive physical form and structure that reflects Patterson’s small-town qualities and agricultural heritage.
Policy CD-1.1	<p>Qualities desired in new residential neighborhoods. The qualities desired in residential expansion areas shall include, but are not limited, the following:</p> <ul style="list-style-type: none"> <li>• A mix of housing products and densities serving the broadest range of households, incomes and ages;</li> <li>• A neighborhood center containing higher density residential development, retail, restaurants, entertainment, office, and public uses within a short walk or bicycle ride of surrounding residences;</li> <li>• Parks, schools and other public/quasi-public uses within a short walk or bicycle ride;</li> <li>• A complete and interconnected system of mobility consisting of roadways, bicycle and pedestrian paths, and transit stops;</li> <li>• Short blocks with a substantial tree canopy shading the street and sidewalk;</li> <li>• Connectivity to surrounding neighborhoods, regional retail centers and employment;</li> <li>• A sense of personal safety;</li> </ul>	<p><b>Consistent:</b> The proposed Master Plan provides a mix of single-family housing products, parks, trails, and an interconnected roadway network.</p>	<p><b>Consistent:</b> The proposed Master Plan provides a mix of single-family and multi-family housing products, commercial areas, schools, parks, trails, and an interconnected roadway network.</p>

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	<ul style="list-style-type: none"> <li>• Elements that foster the sustainable use of scarce or non-renewable resources;</li> <li>• The appropriate qualities for a given project will be determined by the City Council on a case-by-case basis consistent with the policies and implementation measures of the General Plan. The City shall continue to require new development to incorporate the principles of ‘Smart Growth,’ including [Policy CD 1.2]:</li> </ul>		
Policy CD-1.2	Enhance distinctiveness. The City shall endeavor to maintain and enhance the distinctiveness and integrity of neighborhoods and districts in Patterson.	<b>Consistent:</b> The proposed Master Plan contemplates a distinctive ‘Modern Mission’ design theme to link the residential uses together.	<b>Consistent:</b> The proposed Master Plan contemplates a range of uses including a lakeside mixed use activity area that would be linked together by a distinctive ‘Modern Mission’ design theme.
Policy CD-1.3	Preserve neighborhood qualities. The City shall seek to preserve the vital qualities of existing, stable residential neighborhoods and shall promote the development of new residential neighborhoods with these same qualities.	<b>Not Applicable:</b> The proposed Baldwin Master Plan does not abut any existing residential neighborhoods.	<b>Consistent:</b> The Zacharias Master Plan encompasses the Ranchette Triangle and abuts the Patterson Gardens neighborhood to the south. The Master Plan allows the Ranchette Triangle property owners to continue existing land use activities or develop in accordance with the Master Plan. Although the Zacharias Master Plan would not directly interface with any of the Patterson Gardens residential uses, it would reflect the contemporary character of this area.
Policy CD-1.4	Link and define neighborhoods. The City shall use the circulation system and the pedestrian and bicycle pathway system as important structural elements to link and define neighborhoods and districts in Patterson.	<b>Not Applicable:</b> The Baldwin Master Plan does not abut any existing neighborhoods.	<b>Consistent:</b> The Zacharias Master Plan encompasses the Ranchette Triangle. The Master Plan proposes the East-West Connector to avoid increasing existing traffic volumes on Ivy Avenue or Rose Avenue in a manner that would degrade

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
			the quality of life in this neighborhood.
Policy CD-1.7	Maintain a distinct urban edge. The City shall seek to maintain a distinct agricultural definition to the urban edge of the city as a means of emphasizing Patterson’s small-town qualities and agricultural heritage.	<b>Consistent:</b> The proposed Master Plan would provide a landscaped setback with the agricultural uses to the south.	<b>Consistent:</b> The proposed Master Plan would use as Zacharias Road and SR-33 as buffers with nearby agricultural uses.
Goal CD-3	To preserve the existing community character and fabric and promote the development of neighborhoods and districts that emphasize pedestrian convenience.	<b>Consistent:</b> The Master Plan provides a pedestrian circulation network consisting of sidewalks and off-street paths.	<b>Consistent:</b> The Master Plan provides a pedestrian circulation network consisting of sidewalks and off-street paths.
Policy CD-3.1	Respect neighborhood scale and character. In approving new or infill development, the City shall respect existing neighborhood scale and character.	<b>Not Applicable:</b> The Baldwin Master Plan does not abut any existing neighborhoods.	<b>Consistent:</b> The Zacharias Master Plan encompasses the Ranchette Triangle and abuts the Patterson Gardens neighborhood to the south. The Master Plan respects the existing neighborhood scale and character by using the existing PID canal as a buffer with the Ranchette Triangle and avoiding a direct interface with Patterson Canal.
Policy CD-3.2	Neighborhood design. The City shall promote the creation of well-defined residential neighborhoods in newly developing areas. Each of these neighborhoods shall have a clear focal point, such as a park, school, or other open space and community facility, and shall be designed to promote pedestrian convenience. To this end, the City shall encourage the use of existing Patterson neighborhoods, including the grid street system, as models for the planning and design of new residential neighborhoods.	<b>Consistent:</b> The Master Plan contemplates a distinctive entry way on Baldwin Road.	<b>Consistent:</b> The Master Plan contemplates a distinctive entry way on Baldwin Road, as well as at other locations.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Policy CD-3.3	Pedestrian amenities for commercial areas. New commercial and office development shall promote pedestrian convenience, especially in the downtown.	<b>Not Applicable:</b> The Baldwin Master Plan does not include commercial uses.	<b>Consistent:</b> The Master Plan provides a pedestrian circulation network within the light industrial and commercial areas consisting of sidewalks and off-street paths.
Goal CD-4	To maintain and enhance the quality of the Patterson’s landscapes and streetscapes.	<b>Consistent:</b> The proposed Master Plan contemplates streetscaping along Baldwin Road and the internal streets.	<b>Consistent:</b> The proposed Master Plan contemplates streetscaping along Baldwin Road, Zacharias Road, Rogers Road, the East-West Connector, and the internal streets.
Policy CD-4.1	Street trees. The City shall endeavor to protect the urban forest created by mature trees in existing developed areas and in newly developing areas.	<b>Consistent:</b> The proposed Master Plan contemplates street trees along Baldwin Road and the internal streets.	<b>Consistent:</b> The proposed Master Plan contemplates street trees along Baldwin Road, Zacharias Road, Rogers Road, the East-West Connector, and the internal streets.
Policy CD-4.2	Extending the established pattern of landscaping. The City shall require that all new development incorporate the planting of trees and other vegetation that extend the vegetation pattern of older adjacent neighborhoods into new development.	<b>Consistent:</b> The proposed Master Plan contemplates the continuation of the existing Baldwin Road streetscape into the planning area.	<b>Consistent:</b> The proposed Master Plan contemplates the continuation of the existing Baldwin Road and Rogers Road streetscape into the planning area.
Policy CD-4.3	Boulevard planting. The City shall extend and reinforce major street tree/boulevard plantings to enhance the visual character of special and important streets within Patterson.	<b>Consistent:</b> The proposed Master Plan contemplates the continuation of the existing Baldwin Road tree plantings into the planning area.	<b>Consistent:</b> The proposed Master Plan contemplates the continuation of the existing Baldwin Road and Rogers Road tree plantings into the planning area.
Policy CD-4.4	Landscaped medians. The City shall identify appropriate streets for inclusion of landscaped medians.	<b>Consistent:</b> The proposed Master Plan contemplates landscaped medians along all divided roadways.	<b>Consistent:</b> The proposed Master Plan contemplates landscaped medians along all divided roadways.
Goal 1	It is the Goal of the City of Patterson to assist in increasing the availability of permanent housing for all community residents.	<b>Consistent:</b> The proposed Master Plan contemplates up to 305 permanent dwelling units.	<b>Consistent:</b> The proposed Master Plan contemplates up to 4,781 permanent dwelling units.
Objective	Encourage the development of	<b>Consistent:</b> The proposed	<b>Consistent:</b> The proposed

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
1.3	housing and programs for all types of households.	Master Plan contemplates up to 305 permanent dwelling units.	Master Plan contemplates up to 4,781 permanent dwelling units. Units would include single-family and multi-family.
Policy 1-3-8	Encourage the development of multi-family housing	<b>Not Applicable:</b> The Baldwin Master Plan does not propose multi-family housing.	<b>Consistent:</b> The proposed Master Plan contemplates up to 548 high density dwelling units, all of which would be multi-family.
Objective 1.6	Achieve a jobs/housing balance.	<b>Consistent:</b> The proposed Master Plan contemplates up to 305 dwelling units.	<b>Consistent:</b> The proposed Master Plan contemplates up to 4,781 dwelling units
Objective 2-1	Provide the citizens in the City of Patterson with reasonably priced housing opportunities, both purchase and rental, within the financial capacity of all.	<b>Consistent:</b> The proposed Master Plan contemplates up to 305 dwelling units, thereby increasing overall supply. This would contribute to housing affordability.	<b>Consistent:</b> The proposed Master Plan contemplates up to 4,781 dwelling units including single-family and multi-family units. This would increase supply and contribute to housing affordability.
Policy 2-1-1	To preserve affordability, allow and encourage developers to "piggyback" or file concurrent applications (i.e., rezones, tentative tract maps, conditional use permits, variance requests, etc.) if multiple approvals are required, and if consistent with applicable processing requirements.	<b>Consistent:</b> This EIR provides coverage for the discretionary actions that would occur with the proposed Baldwin Master Plan including General Plan Amendment, Pre-zoning, and tract maps, etc.	<b>Consistent:</b> This EIR provides coverage for the discretionary actions that would occur with the proposed Zacharias Master Plan including General Plan Amendment, Pre-zoning, and tract maps, use permits, etc.
Goal 3	Provide And Maintain An Adequate Supply Of Sites For The Development Of New Affordable Housing. It is the goal of the City of Patterson to provide adequate, suitable sites for residential use and development or maintenance of a range of housing that varies sufficiently in terms of cost, design, size, location, and tenure to meet the housing needs of all economic segments of the community at a level which can be supported by the infrastructure.	<b>Consistent:</b> The proposed Master Plan would annex 66 acres of land for residential development into the Patterson city limits for the development of 305 dwelling units. This would further the goal of providing adequate, suitable sites for residential use.	<b>Consistent:</b> The proposed Master Plan would annex 1,186 acres of land for residential development into the Patterson city limits for the development of 4,781 dwelling units. This would further the goal of providing adequate, suitable sites for residential use.

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Objective 3-2	Provide opportunities for mixed-use developments.	<b>Not Applicable:</b> The Baldwin Master Plan is entirely residential.	<b>Consistent:</b> The Zacharias Master Plan includes 27.5 acres of mixed use residential.
Policy 3-2-1	To ensure the development of housing that has, to the extent possible, a support structure of shopping, services, open space, and jobs within easy access.	<b>Consistent:</b> The Master Plan area would include open space/parks and is within 1.3 miles of shopping, services, and jobs.	<b>Consistent:</b> The Master Plan area would include employment areas, retail, mixed use, schools, parks, and trails.
Objective 3-3	Provide a sufficient amount of zoned land to accommodate development for all housing types and income levels.	<b>Consistent:</b> The proposed Master Plan would annex 66 acres of land for residential development into the Patterson city limits.	<b>Consistent:</b> The proposed Master Plan would annex 1,186 acres of land for residential development into the Patterson city limits.
Goal ED-1	To establish and maintain a supportive business climate and a healthy, sustainable economy.	<b>Consistent:</b> The proposed Master Plan would add 305 new dwelling units. This would result in new capital investment, new housing opportunities, and new consumer spending that would support Patterson’s business climate and contribute to a healthy, sustainable economy.	<b>Consistent:</b> The proposed Master Plan consists of the development of 4,781 dwelling units and 7.76 million square feet of light industrial and commercial uses. This would result in new capital investment, new employment opportunities, new housing opportunities, and new consumer spending that would support Patterson’s business climate and contribute to a healthy, sustainable economy.
Policy ED-2.4	Quality of life. The City shall work to improve the quality of life in Patterson to attract and retain skilled workers and their families.	<b>Consistent:</b> The proposed Master Plan would improve quality of life by developing new housing, installing new infrastructure, and creating new recreational opportunities.	<b>Consistent:</b> The proposed Master Plan would improve quality of life by developing new housing, creating new jobs, building new schools, installing new infrastructure, and creating new recreational opportunities.
Goal ED-3	To promote a diverse and balanced mix of employment and housing opportunities.	<b>Consistent:</b> The proposed Master Plan would annex 66 acres for residential development. The Master Plan allows a mix of housing products. This is consistent with the goal of promoting a balanced mix of employment and housing opportunities.	<b>Consistent:</b> The proposed Master Plan would annex 1,162 acres for residential and non-residential development. The Master Plan allows a mix of housing products and light industrial, commercial, schools, and parks. This is consistent with the goal of promoting a balanced mix of employment and housing opportunities.

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Policy ED-3.1	Jobs-to-housing ratio. The City shall maintain an adequate retail, business, and industrial land supply to meet a jobs-to-housing ratio of at least 1.0.	<b>Consistent:</b> The proposed Master Plan would annex 66 acres for residential development. At buildout, the Master Plan would add 1,203 residents at buildout, thereby contributing to the adequate land supply to meet a jobs-to-housing ratio of at least 1.0.	<b>Consistent:</b> The proposed Master Plan would annex 1,162 acres for residential and non-residential development. The Master Plan would add 18,785 residents and 8,670 jobs at buildout, thereby contributing to the adequate land supply to meet a jobs-to-housing ratio of at least 1.0.
Policy ED-3.3	Housing choices. The City shall provide for and encourage a range of housing choices— including live/work units— through land use designations and zoning ordinances.	<b>Consistent:</b> The proposed Master Plan contemplates 305 dwelling units	<b>Consistent:</b> The proposed Master Plan contemplates 4,781 dwelling units
Goal T-1	To create and maintain a roadway network that will ensure the safe and efficient movement of people and goods throughout the city.	<b>Consistent:</b> The proposed Master Plan would construct new and improve existing roadway facilities, which would further the goal of providing for the safe and efficient movement of people and goods.	<b>Consistent:</b> The proposed Master Plan would construct new and improve existing roadway facilities, which would further the goal of providing for the safe and efficient movement of people and goods.
Policy T.1-1	Street design. Street design and access standards shall provide for safe and efficient movement of goods and people. Restrictive traffic control measures (such as channelization, street closures, and prohibition of some traffic movements) shall be used where appropriate to promote traffic safety and efficient traffic operation.	<b>Consistent:</b> The new and improved roadways would adhere to the City’s street design standards. All new roadways within the Master Plan area provide for direct and efficient access. In addition, the proposed Master Plan would install appropriate traffic control measures where appropriate in order to promote traffic safety and efficient traffic operations.	<b>Consistent:</b> The new and improved roadways would adhere to the City’s street design standards. All new roadways within the Master Plan area provide for direct and efficient access. In addition, the proposed Master Plan would install appropriate traffic control measures where appropriate in order to promote traffic safety and efficient traffic operations.
Policy T.1-2	Level of service standard. The City shall endeavor to maintain a minimum Level of Service “D,” as defined by the 2000 Highway Capacity Manual or subsequent revisions, on all streets and intersections within the city. To identify the potential impacts of new development on traffic service levels, the City shall require the preparation of traffic	<b>Consistent:</b> Advanced Mobility Group (AMG) prepared a traffic impact analysis for the proposed Master Plan. The study identified feasible traffic improvements that are reflected as mitigation measures in the Draft EIR to achieve LOS D or better.	<b>Consistent:</b> AMG prepared a traffic impact analysis for the proposed Master Plan. The study identified feasible traffic improvements that are reflected as mitigation measures in the Draft EIR to achieve LOS D or better.

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	impact analyses at the sole expense of the developer for developments determined to be large enough to have potentially significant traffic impacts. This standard does not apply to freeways which are governed by the standards established by Caltrans.		
Policy T.1-3	Hierarchy of streets. The City shall implement a hierarchical street system in which each street serves a specific, primary function and is sensitive to the context of the land uses served. The hierarchy of streets shall be based on the existing one square mile backbone grid system of streets along section lines and the traditional circulation pattern established in the City’s downtown. Development of residential neighborhoods within the backbone grid may employ a more circuitous street pattern with cul-de-sacs, traffic circles, roundabouts and other traffic calming features to help reduce traffic speeds.	<b>Consistent:</b> The proposed Master Plan would include the construction of a hierarchy of new and improved roadways. These roadways have been designed specifically for the characteristics of the proposed Master Plan and would provide seamless connections to existing roadways such as Baldwin Road.	<b>Consistent:</b> The proposed Master Plan would include the construction of a hierarchy of new and improved roadways. These roadways have been designed specifically for the characteristics of the proposed Master Plan and would provide seamless connections to existing roadways such as Baldwin Road, Zacharias Road, and Rogers Road.
Policy T-1.4	City standards for streets. Streets shall be dedicated, widened, extended, and constructed based on the roadway classifications/ definitions and street sections provided in the City’s roadway improvement standards and Street Master Plan (see implementation measure T-2). Dedication and improvements of full rights-of-way shall not be required in existing developed areas where the City determines that such improvements are either infeasible or undesirable. Other deviations from these	<b>Consistent:</b> The proposed Master Plan’s roadways would include streets identified on the City of Patterson General Plan’s Circulation Plan. The roadways would be constructed according to the classifications/definitions and street sections provided in the City’s roadway improvement standards.	<b>Consistent:</b> The proposed Master Plan’s roadways would include streets identified on the City of Patterson General Plan’s Circulation Plan. The roadways would be constructed according to the classifications/definitions and street sections provided in the City’s roadway improvement standards.

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	standards shall be permitted upon a determination by the City Engineer that safe and adequate public access and circulation are preserved by such deviations.		
Policy T-1.5	Neighborhood streets. Neighborhood streets shall be designed, where feasible, to discourage unsafe traffic speeds.	<b>Consistent:</b> The proposed Master Plan’s circulation system would include features such as curvilinear alignments and roundabouts to discourage unsafe traffic speeds.	<b>Consistent:</b> The proposed Master Plan’s circulation system would include features such as curvilinear alignments and roundabouts to discourage unsafe traffic speeds.
Policy T-1.6	South County Corridor. The City shall promote efforts of Stanislaus County, StanCOG and other stakeholders in the development of the South County Corridor to connect W. Main Avenue to Interstate 5. The City’s preference for the alignment of the South County Corridor is shown on the Circulation Plan (Figure II-4 of Chapter II. Land Use/Circulation Diagrams And Standards). However, the final alignment should be decided through a cooperative effort among stakeholders, and informed by a comprehensive feasibility study that assesses at least the following: <ul style="list-style-type: none"> <li>● The appropriate right-of-way width and location;</li> <li>● Environmental and regulatory constraints, especially as they relate to agricultural and biological resources;</li> <li>● The need for, and economic/environmental feasibility of, constructing a second bridge over the San Joaquin River;</li> <li>● An estimate of relevant costs; and</li> <li>● An analysis of alternatives;</li> </ul>	<b>Not Applicable:</b> The proposed Master Plan does not abut the planned South County Corridor.	<b>Consistent:</b> The proposed Master Plan’s circulation system has been designed to accommodate the planned South County Corridor, thereby supporting the City’s preferred alignment and efforts to connect W. Main Avenue to I-5.

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Policy T-1.8	Streets outside the downtown. The primary purpose of streets outside the downtown is the movement of vehicles and goods; parking shall be a secondary and subordinate use only. If travel demands dictate, on-street parking may be removed on streets that serve primarily non-residential development to increase traffic-carrying capabilities.	<b>Consistent:</b> The Master Plan requires each use to provide sufficient off-street parking in accordance with Zoning Ordinance requirements. On-street parking would be prohibited along Baldwin Road.	<b>Consistent:</b> The Master Plan requires each use to provide sufficient off-street parking in accordance with Zoning Ordinance requirements. On-street parking would be prohibited along major roadways such as Baldwin Road, Zacharias Road, and Rogers Road.
Policy T-1.9	Truck access to avoid residential neighborhoods. Industrial and commercial development shall be planned so that truck access through residential areas is avoided.	<b>Not Applicable:</b> The proposed Master Plan would be entirely residential and would not be a substantial source of truck traffic.	<b>Consistent:</b> The light industrial portion of the Master Plan would be within 1.5 mile from the I-5/ Sperry Avenue interchange and the future I-5/Zacharias Road (South County Corridor) interchange. As such, Master Plan-related truck traffic would avoid traveling through residential areas to reach I-5.
Policy T-1.10	Funding of traffic improvements. The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.	<b>Consistent:</b> The proposed Master Plan would mitigate its impact on traffic facilities by installing necessary improvements or paying its share of the costs of necessary improvements as determined in the traffic impact analysis prepared by AMG. Mitigation based on this traffic study has been included in this Draft EIR.	<b>Consistent:</b> The proposed Master Plan would mitigate its impact on traffic facilities by installing necessary improvements or paying its share of the costs of necessary improvements as determined in the traffic impact analysis prepared by AMG. Mitigation based on this traffic study has been included in this Draft EIR.
Policy T-1.11	Private streets discouraged. The City shall discourage the development of private streets in new residential projects. Where private streets are allowed, they shall be constructed to City street standards.	<b>Consistent:</b> The proposed Master Plan does not contemplate any private streets.	<b>Consistent:</b> The proposed Master Plan does not contemplate any private streets.
Policy T-1.12	Traffic calming encouraged. Traffic calming techniques, including roundabouts, traffic	<b>Consistent:</b> The proposed Master Plan contemplates the use of roundabouts at	<b>Consistent:</b> The proposed Master Plan contemplates the use of roundabouts at

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	circles, ‘chokers’ and chicanes, shall be considered as an alternative to traditional intersection controls. Where cul-de-sacs are employed, consideration should be given to establishing connections between the cul-de-sac and other streets, parks, bicycle paths and pedestrian trails.	appropriate locations as well as the linking of cul-de-sacs with pedestrian/bicycle connections.	appropriate locations as well as the linking of cul-de-sacs with pedestrian/bicycle connections.
Policy T-1.13	New interchange. The City shall investigate the construction of a new interchange at Interstate 5 north of Sperry Avenue near Zacharias Road.	<b>Consistent:</b> The traffic analysis considered the need for the future interchange with I-5 and identified the timing at which it would be necessary. This is consistent with the policy of investigating the construction of a new interchange at I-5 north of Sperry Avenue in the vicinity of Zacharias Road.	<b>Consistent:</b> The proposed Master Plan has been designed to accommodate planned South County Corridor, along a portion of its northern boundary. Additionally, the traffic analysis considered the need for the future interchange with I-5 and identified the timing at which it would be necessary. This is consistent with the policy of investigating the construction of a new interchange at I-5 north of Sperry Avenue in the vicinity of Zacharias Road.
Policy T-1.14	Protection of Neighborhoods. The City shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.	<b>Not Applicable:</b> The Baldwin Master Plan does not abut any existing neighborhoods and would not affect circulation patterns within these areas.	<b>Consistent:</b> The Zacharias Master Plan encompasses the Ranchette Triangle and abuts the Patterson Gardens neighborhood to the south. The Master Plan does not propose connections to existing residential streets within these areas and, thus, would not affect circulation patterns within these areas.
Goal T-4	To consider air quality and noise impacts along with traffic flow efficiency when making decisions about improvements to existing roadways or the construction of new roadways.	<b>Consistent:</b> This EIR has considered air quality and noise impacts along with traffic flow efficiency and mitigation has been incorporated where appropriate.	<b>Consistent:</b> This EIR has considered air quality and noise impacts along with traffic flow efficiency and mitigation has been incorporated where appropriate.
Policy T-4.1	Protection of neighborhoods from traffic impacts. To the extent feasible, the City shall provide for separation of residential and other noise-	<b>Not Applicable:</b> The Baldwin Master Plan does not abut any existing neighborhoods and would not affect circulation patterns within these areas.	<b>Consistent:</b> The Zacharias Master Plan encompasses the Ranchette Triangle and abuts the Patterson Gardens neighborhood to the south.

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	sensitive land uses from major roadways to reduce noise and air pollution impacts from traffic.		The Master Plan does not propose connections to existing residential streets within these areas and, thus, would not affect circulation patterns within these areas.
Goal T-5	To promote intergovernmental communication and cooperation concerning transportation-related issues.	<b>Consistent:</b> Relevant state and local agencies that oversee transportation-related issues have been provided notice of the availability of this EIR. The comments of those agencies will be addressed in the Final EIR. This is consistent with promoting communication and cooperation among agencies that oversee transportation-related issues.	<b>Consistent:</b> Relevant state and local agencies that oversee transportation-related issues have been provided notice of the availability of this EIR. The comments of those agencies will be addressed in the Final EIR. This is consistent with promoting communication and cooperation among agencies that oversee transportation-related issues.
Goal 6	To ensure the adequate provision of both on- and off-street parking.	<b>Consistent:</b> The proposed Master Plan requires each use to provide sufficient off-street parking in accordance with Zoning Ordinance requirements.	<b>Consistent:</b> The proposed Master Plan requires each use to provide sufficient off-street parking in accordance with Zoning Ordinance requirements.
Policy T-6.2	Off-street parking required. The City shall require provision of adequate off-street parking in conjunction with all new developments. Parking shall be located convenient to new development and shall be easily accessible from the street system. The adequacy and appropriateness of parking requirements in the Zoning Ordinance shall be periodically reevaluated.	<b>Consistent:</b> The proposed Master Plan requires each use to provide sufficient off-street parking in accordance with Zoning Ordinance requirements.	<b>Consistent:</b> The proposed Master Plan requires each use to provide sufficient off-street parking in accordance with Zoning Ordinance requirements.
Goal T-7	To promote pedestrian, bicycle and rail travel as alternatives to automobile use.	<b>Consistent:</b> The proposed Master Plan provides guidelines for alternative transportation modes such as clearly distinguishing walkways and pedestrian access, orientating buildings to respond to pedestrian use, and implementing pedestrian linkages between parcels and buildings. Such amenities	<b>Consistent:</b> The proposed Master Plan provides guidelines for alternative transportation modes such as clearly distinguishing walkways and pedestrian access, orientating buildings to respond to pedestrian use, and implementing pedestrian linkages between parcels and buildings. Such amenities

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		would also serve bicyclists. As such, pedestrian and bicycle transit would be promoted.	would also serve bicyclists. As such, pedestrian and bicycle transit would be promoted.
Policy T-7.1	Safe pedestrian and bike pathways. The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its fair share of the costs for development of this pathway system.	<b>Consistent:</b> The proposed Master Plan provides guidelines for alternative transportation modes such as clearly distinguishing walkways and pedestrian access, orientating buildings to respond to pedestrian use, and implementing pedestrian linkages between parcels and buildings. Such amenities would also serve bicyclists. As such, pedestrian and bicycle transit would be promoted.	<b>Consistent:</b> The proposed Master Plan provides guidelines for alternative transportation modes such as clearly distinguishing walkways and pedestrian access, orientating buildings to respond to pedestrian use, and implementing pedestrian linkages between parcels and buildings. Such amenities would also serve bicyclists. As such, pedestrian and bicycle transit would be promoted.
Policy T-7.2	Pedestrian access. All new development shall be reviewed to ensure safe pedestrian access is provided from the street, within parking areas and between new development and surrounding neighborhoods.	<b>Consistent:</b> The Master Plan provides guidelines for the appropriate provision of safe pedestrian access, including connection to and from parks.	<b>Consistent:</b> The Master Plan provides guidelines for the appropriate provision of safe pedestrian access, including connection to and from commercial areas, schools, and parks.
Policy T-7.3	Bike routes. The City shall establish a safe and convenient network of identified bicycle routes connecting new residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.	<b>Consistent:</b> The Master Plan sets forth a network of on-street and off-street bicycle routes that provide direct, safe, and convenient routes.	<b>Consistent:</b> The Master Plan sets forth a network of on-street and off-street bicycle routes that provide direct, safe, and convenient routes.
Policy T-7.4	Separation of bike routes from motor vehicles. Bicycle routes shall emphasize paths separated from vehicle traffic (Class I) to the maximum extent possible, but shall also include bicycle lanes within public streets (Class II and III). The City shall limit onstreet bicycle routes to those streets where the available roadway	<b>Consistent:</b> The Master Plan sets forth a network of on-street and off-street bicycle routes.	<b>Consistent:</b> The Master Plan sets forth a network of on-street and off-street bicycle routes.

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	width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.		
Policy T-7.5	Include pathways in open space. To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.	<b>Consistent:</b> The Master Plan sets forth a network of off-street bicycle/pedestrian paths that would include alignments within open space areas.	<b>Consistent:</b> The Master Plan sets forth a network of off-street bicycle/pedestrian paths that would include alignments within open space areas.
Policy T-7.6	Bike storage. The City shall require the inclusion of bicycle parking facilities at all new major public facilities and commercial and employment sites and shall encourage large employers to provide showers for employees.	<b>Not Applicable:</b> The Master Plan is entirely residential.	<b>Consistent:</b> The proposed Master Plan’s commercial and mixed uses would be required to provide bicycle storage facilities. Certain project uses may provide on-site locker room/shower facilities for employees.
Policy T-7.8	Bike safety. Bicycle safety shall be considered when implementing improvements for automobile traffic operations.	<b>Consistent:</b> The proposed Master Plan’s roadways would be constructed according to standards set by the City of Patterson, including those related to bicycle safety.	<b>Consistent:</b> The proposed Master Plan’s roadways would be constructed according to standards set by the City of Patterson, including those related to bicycle safety.
Goal PS-1	To maintain an adequate level of service in the City’s water system to meet the needs of existing and future development.		
Policy PS-1.3	Supply for new development. The City shall not approve any new development without the demonstrated assurance of an adequate water supply to support such development that meets City criteria for both potable and non-potable demands, and a City-approved funding mechanism to pay for necessary improvements. Such assurance shall be provided in a form and manner determined by the City, and may include, but is not limited to, the following: a. A contract between the property owner(s) and a	<b>Consistent:</b> A Water Supply Assessment was prepared that determined that the City would have adequate long-term water supply to serve the Master Plan area.	<b>Consistent:</b> A Water Supply Assessment was prepared that determined that the City would have adequate long-term water supply to serve the Master Plan area.

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	<p>water purveyor guaranteeing the long-term delivery of a suitable quantity of water to serve the intended use of the property consistent with the General Plan;</p> <p>b. A contract between a water purveyor and the City guaranteeing the long-term delivery of a suitable quantity of water to serve the intended use of the property consistent with the General Plan;</p> <p>c. Such other mechanism suitable to the City.</p>		
Goal PS-2	To maintain an adequate level of service in the City’s wastewater collection and disposal system to meet the needs of existing and future development.	<b>Consistent:</b> A Sanitary Sewer Analysis concluded that adequate transmission capacity exists to handle effluent from the Master Plan area. Buildout of the Master Plan would contribute to the need for additional wastewater treatment capacity as phases are built out. The applicant would contribute “fair share” fees to the City of Patterson to fund the eventual expansion, thereby ensuring adequate levels of wastewater collection and disposal are maintained.	<b>Consistent:</b> A Sanitary Sewer Analysis concluded that adequate transmission capacity exists to handle effluent from the Master Plan area. Buildout of the Master Plan would contribute to the need for additional wastewater treatment capacity as phases are built out. The applicant would contribute “fair share” fees to the City of Patterson to fund the eventual expansion, thereby ensuring adequate levels of wastewater collection and disposal are maintained.
Policy PS-2.2	Provision of sewer service. The City shall ensure the provision of adequate sewer service to all new development in the city and support the extension of sewer service to existing developed areas where this service is lacking.	<b>Consistent:</b> The Master Plan contemplates the development of a sewer collection system that would connect to the City’s municipal system. The applicant would be responsible for installation of necessary infrastructure.	<b>Consistent:</b> The Master Plan contemplates the development of a sewer collection system that would connect to the City’s municipal system. The applicant would be responsible for installation of necessary infrastructure.
Goal PS-3	To maintain an adequate level of service in the City’s storm drainage system to accommodate runoff from existing and future development and to prevent property damage due to flooding.	<b>Consistent:</b> The Master Plan contemplates the development of a storm drainage system that would manage storm water runoff to prevent flooding.	<b>Consistent:</b> The Master Plan contemplates the development of a storm drainage system that would manage storm water runoff to prevent flooding. Additionally, the Master Plan contemplates a flood control

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			basin that would capture excess flood flows from Del Puerto Creek and prevent inundation of the City.
Policy PS-3.2	Expansion of drainage systems. The City shall expand and develop storm drainage facilities to accommodate the needs of existing and planned development.	<b>Consistent:</b> The Master Plan contemplates the development of a storm drainage system that would connect to the municipal system. The applicant would be responsible for installation of necessary infrastructure.	<b>Consistent:</b> The Master Plan contemplates the development of a storm drainage system that would be designed to promote percolation into the aquifer. The applicant would be responsible for installation of necessary infrastructure.
Policy PS-3.5	Pollutant requirements. Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.	<b>Consistent:</b> The Master Plan’s storm drainage system incorporates Low Impact Development water quality treatment concepts such as bioretention basins consistent with Regional Water Quality Control Board requirements.	<b>Consistent:</b> The Master Plan’s storm drainage system incorporates Low Impact Development water quality treatment concepts such as bioretention basins consistent with Regional Water Quality Control Board requirements.
Policy PS-3.6	National Flood Insurance Program. The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.	<b>Not Applicable:</b> The Baldwin Master Plan area is not located within a 100-year flood hazard area.	<b>Consistent:</b> The Master Plan contemplates the development of a flood control basin that would capture excess flood flows from Del Puerto Creek and prevent inundation of the Master Plan areas and other portions of the City of Patterson. Once built, the City file an application for a Letter of Map Revision with FEMA that would remove the Master Plan area from a 100-year flood hazard area and, thus, obviate the need for flood insurance.
Policy PS-3.10	Storm drainage improvements required. Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall. Where feasible, storm drainage facilities should continue to be combined with park facilities.	<b>Consistent:</b> The applicant would be responsible for installation of necessary storm drainage infrastructure prior to occupancy. Where appropriate, the Master Plan’s storm drainage system’s basins would be available for park and recreation use during the dry season.	<b>Consistent:</b> The applicant would be responsible for installation of necessary storm drainage infrastructure prior to occupancy. Where appropriate, the Master Plan’s storm drainage system’s basins would be available for park and recreation use during the dry season. The flood control basin is planned to be a dual use facility with athletic fields.

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Policy PS-3.14	Erosion control. The City shall require new development to incorporate erosion control measures to minimize sedimentation of streams and other natural drainage features.	<b>Consistent:</b> The applicant would be required to implement a Storm Water Pollution Prevent Plan during construction to prevent pollution from entering downstream waterways.	<b>Consistent:</b> The applicant would be required to implement a Storm Water Pollution Prevent Plan during construction to prevent pollution from entering downstream waterways.
Policy PS-3.15	Groundwater recharge. Where feasible, storm drainage facilities shall be designed to assist with, and complement, the water supply program in regards to groundwater recharge.	<b>Consistent:</b> The Master Plan’s storm water basins would be designed to promote percolation into aquifer to promote groundwater recharge.	<b>Consistent:</b> The Master Plan’s storm water collection system would pipe runoff to a percolation basin near Del Puerto Creek to promote groundwater recharge.
Goal PS-4	To provide for the efficient collection and disposal of solid waste while minimizing impacts to the physical and social environment.	<b>Consistent:</b> The Master Plan area would be served with curbside solid waste and recycling service.	<b>Consistent:</b> The Master Plan area would be served with solid waste and recycling service. Additionally, the Master Plan contemplates centralized solid waste collection facilities for commercial and multi-family areas.
Goal PS-5	To ensure that an adequate level of police service is maintained as new development occurs.	<b>Consistent:</b> The Master Plan contemplates design features to deter and prevent crime such as street lighting, fencing/walls where appropriate, and visible public spaces. Additionally, the applicant would pay police development fees as the project buildout. These measures would ensure that the Master Plan furthers the goal of providing adequate police service.	<b>Consistent:</b> The Master Plan contemplates design features to deter and prevent crime such as street lighting, fencing/walls where appropriate, and visible public spaces. Additionally, the applicant would pay police development fees as the project buildout. These measures would ensure that the Master Plan furthers the goal of providing adequate police service.
Goal PS-6	To ensure that an adequate level of fire service is maintained as new development occurs.	<b>Consistent:</b> The entire Master Plan area is within a 5-minute or less response time from Station No. 2. The Master Plan’s roadways comply with the Circulation Element design standards, which reflect Fire Code requirements. Additionally, the applicant would pay fire development fees as the project buildout. These measures would ensure	<b>Consistent:</b> The entire Master Plan area is within a 5-minute or less response time from Station No. 2. The Master Plan’s roadways comply with the Circulation Element design standards, which reflect Fire Code requirements. Additionally, the applicant would pay fire development fees as the project buildout. These measures would ensure

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Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
		that the Master Plan furthers the goal of providing adequate fire protection.	that the Master Plan furthers the goal of providing adequate fire protection.
Goal PS-7	To provide for the educational needs of Patterson residents.	<b>Consistent:</b> The applicant would pay school development fees as the project buildout, which would fund the development of new or expanded school facilities. These measures would ensure that the Master Plan furthers the goal of providing adequate educational opportunities.	<b>Consistent:</b> The Master Plan contemplates a 600-student elementary school and an 800-student middle school. Additionally, certain applicants would pay school development fees as the project buildout, which would fund the development of new or expanded school facilities. These measures would ensure that the Master Plan furthers the goal of providing adequate educational opportunities.
Policy PS-7.1	School sites. The City shall assist the Patterson Unified School District and others in locating and reserving appropriate sites for new schools.	<b>Not Applicable:</b> Due to its size and location, the Baldwin Master Plan does not propose any school sites.	<b>Consistent:</b> The Master Plan contemplates a 600-student elementary school and an 800-student middle school. These facilities reflect input provided by Patterson Unified School District (PUSD).
Policy PS-7.7	School facilities concurrent with residential development. The City shall require, to the extent possible, that new school facilities are constructed concurrently with new residential development.	<b>Not Applicable:</b> Due to its size and location, the Baldwin Master Plan does not propose any school sites.	<b>Consistent:</b> Following recordation of the final map, the school sites would be dedicated to PUSD. Development of the schools would be at the discretion of PUSD; however, it would have the ability to construct one or both schools concurrently with new residential development.
Goal AR-1	To foster effective communication, cooperation, and coordination in developing and operating community and regional air quality programs.	<b>Consistent:</b> The Master Plan furthers regional air quality programs through participation in the Indirect Source Review program, provision of landscaped areas, and the provision of a trail network to promote use of non-motorized transportation.	<b>Consistent:</b> The Master Plan furthers regional air quality programs through participation in the Indirect Source Review program, provision of landscaped areas, and the provision of a trail network to promote use of non-motorized transportation.
Policy AR-1.3	CEQA. The City shall use the CEQA process to identify and avoid or mitigate potentially significant air quality impacts	<b>Consistent:</b> This EIR evaluates the Master Plan’s air quality impacts and sets forth air quality mitigation measures	<b>Consistent:</b> This EIR evaluates the Master Plan’s air quality impacts and sets forth air quality mitigation measures

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	of new development. The CEQA process shall be used to ensure early consultation with the San Joaquin Valley Unified Air Pollution Control District concerning air quality issues associated with specific development proposals.	consistent with Air District guidance.	consistent with Air District guidance.
Goal AR-2	To reduce the air quality impacts of motor vehicle use.	<b>Consistent:</b> The Master Plan contemplates a trail network to promote use of non-motorized transportation.	<b>Consistent:</b> The Master Plan contemplates a trail network to promote use of non-motorized transportation.
Goal AR-4	Minimize exposure of the public to toxic air pollutant emissions and noxious odors from industrial, manufacturing, and processing facilities.	<b>Consistent:</b> The Master Plan is entirely residential and, thus, would not be a source of toxic air pollutant emissions and noxious odors.	<b>Consistent:</b> The Master Plan’s light industrial uses would be located along Rogers Road, with stormwater basins serving as a buffer between the nearest residential area. As such, truck traffic serving the light industrial areas would avoid residential areas and minimize exposure to toxic air pollutant emissions and noxious odors.
Policy AR-4.1	Sensitive receptors. The City shall, to the extent practicable, separate sensitive land uses from significant sources of air pollutants or odor emissions. Sensitive land uses include, but are not limited to, those that support people or other organisms that may have a significantly increased sensitivity or exposure to air pollution by virtue of their age and health (e.g. schools, day care centers, hospitals, nursing homes), status (e.g. sensitive or endangered species), or proximity to the source. The City shall require residential development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources of toxic emissions such	<b>Consistent:</b> The Master Plan is entirely residential and, thus, would not be a source of toxic air pollutant emissions and noxious odors.	<b>Consistent:</b> The Master Plan’s light industrial uses would be located along Rogers Road, with stormwater basins serving as a buffer between the nearest residential area. As such, truck traffic serving the light industrial areas would avoid residential areas and minimize exposure to toxic air pollutant emissions and noxious odors.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	as freeways, major arterials, industrial sites, and hazardous material locations. For purposes of compliance with this policy, the City will be guided by the recommendations provided in the Air Quality and Land Use Handbook: A Community Health Perspective published by the California Air Resources Board.		
Goal AR-5	Reduce particulate emissions from sources under the jurisdiction of the city.	<b>Consistent:</b> This EIR requires construction dust abatement as mitigation. Additionally, buildout of the Master Plan would convert an agricultural area to urban use, which would significantly reduce windblown particulate matter. Collectively, these features further the goal of reducing particulate matter emissions.	<b>Consistent:</b> This EIR requires construction dust abatement as mitigation. Additionally, buildout of the Master Plan would convert an agricultural area to urban use, which would significantly reduce windblown particulate matter. Collectively, these features further the goal of reducing particulate matter emissions.
Goal AR-7	To reduce to the emission of greenhouse gases and to promote energy efficiency.	<b>Consistent:</b> This EIR evaluates the Master Plan’s greenhouse gas emissions and identifies reduction measures in accordance with Air District guidance.	<b>Consistent:</b> This EIR evaluates the Master Plan’s greenhouse gas emissions and identifies reduction measures in accordance with Air District guidance.
Policy AR-7.4	Greenhouse gas emissions from new development. The City shall implement measures to reduce the emission of greenhouse gases from new development. Such measures may include, but are not limited to, the following: a. Discouraging auto-dependent patterns of development; b. Promoting compact, mixed-use, pedestrian-friendly, and transit oriented development; c. Promoting energy-efficient building design and site planning using either Build It Green and LEED™ Silver	<b>Consistent:</b> The Master Plan would develop 305 dwelling units in proximity to a regional jobs center. The Master Plan also contemplates a trail network that would connect residential areas to parks to promote non-motorized transportation.	<b>Consistent:</b> This Master Plan includes a mix of land uses including residential, commercial, industrial, schools, and parks. Additionally, the Master Plan would develop 4,781 dwelling units in proximity to a regional jobs center. Finally, the Master Plan contemplates a trail network that would connect residential areas to commercial areas, schools, and parks to promote non-motorized transportation.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	standards for residential and non-residential buildings, respectively; and d. Working to improve the ratio of jobs to housing.		
Goal PR-1	To establish and maintain a public park system and recreation facilities suited to the needs of Patterson residents and visitors.	<b>Consistent:</b> The Master Plan contemplates the development of parks and a trail network and would further the goal of developing a public park system and recreation facilities suited to the needs of Patterson residents and visitors.	<b>Consistent:</b> The Master Plan contemplates the development of parks, a trail network, and dual use flood control basin/regional athletic facility. As such, the Master Plan would further the goal of developing a public park system and recreation facilities suited to the needs of Patterson residents and visitors.
Policy PR-1.3	Requirements for development. New development shall be required to assist in meeting the City’s standard of five acres per 1,000 residents. To this end, the City shall require all new development to dedicate land, dedicate improvements, pay in-lieu fees, or a combination of these determined acceptable by the City, to the maximum extent authorized by law.	<b>Consistent:</b> The Master Plan contemplates 305 dwelling units and, thus, would add 1,203 residents. As such, it would create a demand for 6 acres of parks/recreational facilities. The Master Plan proposes the development of 5 acres of parks/recreational facilities on-site. The applicant would provide in lieu fees to the City for the development of parkland elsewhere.	<b>Consistent:</b> The Master Plan contemplates 4,781 dwelling units and, thus, would add 18,785 residents. As such, it would create a demand for 94 acres of parks/recreational facilities. The Master Plan proposes the development of 57 acres of parks/recreational facilities on-site and the approximately 40-acre dual use flood control/athletic facility. If necessary, the applicants would provide in lieu fees to the City for the development of parkland elsewhere.
Policy PR-1.7	Joint-use. The City shall pursue and maintain agreements for joint-use of school facilities as a high priority for the development of new park and recreational facilities, especially for after-school activities.	<b>Not Applicable:</b> The Baldwin Master Plan does not propose any joint use facilities.	<b>Consistent:</b> The proposed school sites may be available for public use during non-school hours. Additionally, the proposed dual use flood control/athletic facility is contemplated to interface with the planned PUSD high school to the east. As such, this facility is anticipated to be a joint-use City/PUSD facility.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Goal PR-4	To preserve and enhance Patterson’s historical heritage.	<b>Consistent:</b> This EIR evaluates the Master Plan’s potential impacts on historic resources and sets forth air quality mitigation measures consistent with State guidance.	<b>Consistent:</b> This EIR evaluates the Master Plan’s potential impacts on historic resources and sets forth air quality mitigation measures consistent with State guidance.
Goal PR-5	To protect Patterson’s Native American heritage.	<b>Consistent:</b> This EIR evaluates the Master Plan’s potential impacts on tribal cultural resources and burial sites and sets forth air quality mitigation measures consistent with State guidance.	<b>Consistent:</b> This EIR evaluates the Master Plan’s potential impacts on tribal cultural resources and burial sites and sets forth air quality mitigation measures consistent with State guidance.
Policy PR-5.2	Native American consultation requirements. The City shall continue to comply with the requirements Government Code Sections 65352.3 and 65352.4 which require the City to consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects.	<b>Consistent:</b> The City of Patterson provided notice regarding the Master Plan to local tribes. No requests for consultation were received.	<b>Consistent:</b> The City of Patterson provided notice regarding the Master Plan to local tribes. No requests for consultation were received.
Goal PR-6	To protect the area’s archaeological resources.	<b>Consistent:</b> This EIR evaluates the Master Plan’s potential impacts on archaeological resources and sets forth air quality mitigation measures consistent with State guidance.	<b>Consistent:</b> This EIR evaluates the Master Plan’s potential impacts on archaeological resources and sets forth air quality mitigation measures consistent with State guidance.
Goal HS-1	To prevent loss of life, injury, and property damage due to geologic and seismic hazards.	<b>Consistent:</b> There are no seismic hazards within the Master Plan boundaries. Furthermore, all Master Plan structures would be required to comply with the applicable seismic safety requirements of the California Building Standards Code.	<b>Consistent:</b> There are no seismic hazards within the Master Plan boundaries. Furthermore, all Master Plan structures would be required to comply with the applicable seismic safety requirements of the California Building Standards Code.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Goal HS-2	To prevent loss of life, injury, and property damage due to flooding.	<b>Not Applicable:</b> The Baldwin Master Plan area is not located within a 100-year flood hazard area.	<b>Consistent:</b> The Master Plan contemplates the development of a flood control basin that would capture excess flood flows from Del Puerto Creek and prevent inundation of the Master Plan areas and other portions of the City of Patterson.
Policy HS-2.5	Flood protection for residences. New residential development, including mobile homes, shall be constructed so that the lowest floor is at least 12 inches above the 100- year flood level.	<b>Not Applicable:</b> The Baldwin Master Plan area is not located within a 100-year flood hazard area.	<b>Consistent:</b> The Master Plan contemplates the development of a flood control basin that would capture excess flood flows from Del Puerto Creek and prevent inundation of the Master Plan areas and other portions of the City of Patterson. Once built, the City file an application for a Letter of Map Revision with FEMA that would remove the Master Plan area from a 100-year flood hazard area and, thus, obviate the need to raise finished floor elevations.
Policy HS-2.6	Flood protection for non-residential development. Non-residential development shall be anchored and flood-proofed to prevent damage from the 100-year flood or, alternatively, elevated to at least 12 inches above the 100-year flood level.	<b>Not Applicable:</b> The Baldwin Master Plan area is not located within a 100-year flood hazard area.	<b>Consistent:</b> The Master Plan contemplates the development of a flood control basin that would capture excess flood flows from Del Puerto Creek and prevent inundation of the Master Plan areas and other portions of the City of Patterson. Once built, the City file an application for a Letter of Map Revision with FEMA that would remove the Master Plan area from a 100-year flood hazard area and, thus, obviate the need to raise finished floor elevations.
Policy HS-2.16	Flood hazard mitigation prior to development. The City shall not approve new development in areas subject to a 100-year flood event, based on Federal Emergency Management Agency (FEMA) or on other	<b>Not Applicable:</b> The Baldwin Master Plan area is not located within a 100-year flood hazard area.	<b>Consistent:</b> The Master Plan contemplates the development of a flood control basin that would capture excess flood flows from Del Puerto Creek and prevent inundation of the Master Plan areas and other

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
	<p>updated mapping acceptable to the City, unless and until the flood hazard has been mitigated, such mitigation may be accomplished by one, or a combination of, the following:</p> <ul style="list-style-type: none"> <li>• Compliance with Title 17 of the City’s Municipal Code, Flood Hazard areas.</li> <li>• Installation of flood control improvements along Del Puerto Creek and/or Salado Creek.</li> <li>• Avoidance of flood prone areas.</li> </ul>		<p>portions of the City of Patterson. Once built, the City file an application for a Letter of Map Revision with FEMA that would remove the Master Plan area from a 100-year flood hazard area and, thus, obviate the need for flood insurance.</p>
Goal HS-3	To prevent loss of life, injury, and property damage due to wildland and structural fires, explosions and release of hazardous materials.	<p><b>Consistent:</b> There are no wildland areas susceptible to fires within or adjacent to the Master Plan boundaries. Furthermore, all Master Plan structures would be required to comply with the applicable fire protection requirements of the California Building Standards Code.</p>	<p><b>Consistent:</b> There are no wildland areas susceptible to fires within or adjacent to the Master Plan boundaries. Furthermore, all Master Plan structures would be required to comply with the applicable fire protection requirements of the California Building Standards Code.</p>
Goal HS-5	To protect city residents from the harmful and undesirable effects of excessive noise	<p><b>Consistent:</b> This EIR evaluates the Master Plan’s potential noise impacts and sets forth air quality mitigation measures to reduce noise levels to acceptable levels.</p>	<p><b>Consistent:</b> This EIR evaluates the Master Plan’s potential noise impacts and sets forth air quality mitigation measures to reduce noise levels to acceptable levels.</p>
Policy HS-5.1	Noise levels resulting from non-transportation sources. New development of noise-sensitive uses shall not be allowed where the noise level due to nontransportation noise sources will exceed the noise level standards of Table HS-1, as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table HS-1	<p><b>Consistent:</b> This EIR evaluates nontransportation noise sources such as construction noise and stationary noise and, as necessary, sets forth air quality mitigation measures to reduce noise levels to acceptable levels.</p>	<p><b>Consistent:</b> This EIR evaluates nontransportation noise sources such as construction noise and stationary noise and, as necessary, sets forth air quality mitigation measures to reduce noise levels to acceptable levels.</p>

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Policy HS-5.2	Noise levels resulting from non-transportation noise sources. Noise levels resulting from nontransportation noise sources shall be mitigated so as not to exceed the noise level standards of Table HS-1 as measured immediately within the property line of lands designated for noise-sensitive uses. This policy does not apply to noise sources associated with agricultural operations on lands zoned for agricultural uses.	<b>Consistent:</b> This EIR uses the noise level standards set forth in Table HS-1 as the basis for assessing the significance of noise impacts.	<b>Consistent:</b> This EIR uses the noise level standards set forth in Table HS-1 as the basis for assessing the significance of noise impacts.
Policy HS-5.3	Acoustical analysis required. Where proposed nonresidential land uses are likely to produce noise levels exceeding the performance standards of Table HS-1 at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are identified in Table HS-2.)	<b>Consistent:</b> Although the Baldwin Master Plan is entirely residential, an acoustical analysis was prepared. Refer to Section 3.11, Noise.	<b>Consistent:</b> An acoustical analysis was prepared to assess the impacts of nonresidential noise on residential receptors. Refer to Section 3.11, Noise.
Policy HS-5.5	Noise sensitive land uses. New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.	<b>Not Applicable:</b> The Baldwin Master Plan consists of entirely residential uses.	<b>Consistent:</b> The Zacharias Master Plan’s nonresidential uses would not expose surrounding residential uses to excessive noise levels. Refer to Section 3.11, Noise.
Goal HS-6	To prevent crime and promote the protection of people and property.	<b>Consistent:</b> The Master Plan contemplates design features to deter and prevent crime	<b>Consistent:</b> The Master Plan contemplates design features to deter and prevent crime

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
		such as street lighting, fencing/walls where appropriate, and visible public spaces.	such as street lighting, fencing/walls where appropriate, and visible public spaces.
Policy HS-6.2	Deterrence through design. The City shall encourage the use of physical site planning as an effective means of preventing crime. Developers shall design open spaces, parking lots, parks, play areas, and other public spaces so they can be under continuous surveillance by residents. To this end, the Police Department shall participate in the development review process to ensure that crime prevention considerations are incorporated in the design of residential, commercial, industrial, and public facility projects.	<b>Consistent:</b> The Master Plan contemplates design features to deter and prevent crime such as street lighting, fencing/walls where appropriate, and visible public spaces. The Police Department will review neighborhood designs for crime prevention considerations as they come in for review and approval.	<b>Consistent:</b> The Master Plan contemplates design features to deter and prevent crime such as street lighting, fencing/walls where appropriate, and visible public spaces. The Police Department will review neighborhood designs for crime prevention considerations as they come in for review and approval.
Goal NR-1	To protect and preserve the quality of water from local watersheds, groundwater resources, and water bodies including creeks, reservoirs, and the San Joaquin River.	<b>Consistent:</b> The Master Plan’s storm drainage system incorporates Low Impact Development water quality treatment concepts such as bioretention basins consistent with Regional Water Quality Control Board requirements. These features would serve to protect and preserve local surface and groundwater resources.	<b>Consistent:</b> The Master Plan’s storm drainage system incorporates Low Impact Development water quality treatment concepts such as bioretention basins consistent with Regional Water Quality Control Board requirements. These features would serve to protect and preserve local surface and groundwater resources.
Policy NR-1.2	Stormwater quality. The City shall implement measures to minimize the discharge of pollutants and sediment into Salado Creek, Del Puerto Creek and the San Joaquin River.	<b>Consistent:</b> The Master Plan’s storm drainage system would not directly discharge into Salado Creek, Del Puerto Creek or the San Joaquin River. Instead, storm water would be treated and piped to percolation basins.	<b>Consistent:</b> The Master Plan’s storm drainage system would not directly discharge into Salado Creek, Del Puerto Creek or the San Joaquin River. Instead, storm water would be treated and piped to percolation basins.

General Plan		Consistency Determination	
Goal/Policy	Text	Baldwin Master Plan	Zacharias Master Plan
Policy NR-1.7	CEQA. The City shall use the California Environmental Quality Act (CEQA) process to identify and avoid (or mitigate) potential groundwater pollution problems resulting from new urban development.	<b>Consistent:</b> This EIR evaluates impacts on groundwater and concluded that all Master Plan impacts were less than significant and did not require mitigation.	<b>Consistent:</b> This EIR evaluates impacts on groundwater and concluded that all Master Plan impacts were less than significant and did not require mitigation.
Source: City of Patterson 2010. FCS 2020.			

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

**Municipal Code Consistency**

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**Impact LU-3: The Master Plans would not conflict with the Patterson Municipal Code.**

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**Impact Analysis**

This impact assesses whether the proposed Master Plans would conflict with the Municipal Code.

**Baldwin and Zacharias Master Plans**

The proposed Baldwin Master Plan and Zacharias Master Plan each establishes the regulatory framework that would govern buildout. The Master Plans are intended to supplement the General Plan by establishing area-specific development standards and design guidelines that will apply to new development within the plan boundaries. The Master Plans provide specific area-wide development standards which supplement municipal codes, but since the lands would be annexed into the city, Municipal Code requirements would still apply in other respects, where applicable.

The proposed Master Plans would facilitate the orderly and planned development of the proposed land uses within the Master Plan boundaries. The Master Plan requires structures to be developed in accordance with a set of design standards and guidelines to encourage sensitive, integrated, innovative and sustainable project designs. In summary, the proposed Master Plans comply with all applicable requirements of the Patterson Municipal Code.

The proposed Master Plans would be incorporated into the Municipal Code and, therefore, represents a self-mitigating aspect of the proposed Master Plan. Because the Master Plans comply

with all applicable requirements for such land use plan, it would be consistent and compatible with the Municipal Code. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

**LAFCo Consistency**

**Impact LU-4: The Master Plans would not conflict with LAFCo policies.**

**Impact Analysis**

This impact assesses whether the proposed Master Plans would conflict with LAFCo policies.

**Baldwin and Zacharias Master Plans**

The proposed Master Plan would require approval from Stanislaus Local Agency Formation Commission (LAFCo) for annexation of the Baldwin and Zacharias Master Plan areas into the Patterson city limits. Pursuant to state law and Stanislaus LAFCo procedures, a city’s corporate limits must be at a minimum co-terminus with its Sphere of Influence. The applicant is seeking to expand the Sphere of Influence in a manner that renders it co-terminus with the city limits contemplated by the annexation.

As such, this EIR will address project consistency with the criteria set forth in California Government Code Section 56668 (also known as the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000), which establishes factors LAFCo agencies must use in reviewing adjustments to jurisdictional boundaries. Table 3.10-2 provides a consistency analysis with California Government Code Section 56668 for the annexation request.

**Table 3.10-2: California Government Code Section 56668 (Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000) Consistency Analysis**

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
1	Population and population density; land area and land use; per capita assessed valuation; topography, natural boundaries, and drainage basins; proximity to other populated areas; the likelihood of significant growth in the area, and in adjacent incorporated and unincorporated areas, during the next 10 years.	<b>Consistent:</b> The Master Plan is contiguous to the Patterson city limits on its northern boundary. The project site is designated for residential use by the	<b>Consistent:</b> The Master Plan is contiguous to the Patterson city limits on its western, eastern, and southern boundaries. The project site is

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
		City of Patterson General Plan. The project site contains cultivated agricultural land uses planted as orchards and row crops and a single rural residence. The Delta-Mendota Canal forms the western boundary of the project site. Tank Road and the City of Patterson Corporation Yard forms the northern boundary.	designated for residential use by the City of Patterson General Plan. The project site contains cultivated agricultural land uses planted as orchards and row crops and rural residences. Rogers Road forms the western boundary. Zacharias Road forms the northern boundary. The California Northern Railroad tracks and Ward Avenue form the eastern boundary.
2	The need for organized community services; the present cost and adequacy of governmental services and controls in the area; probable future needs for those services and controls; probable effect of the proposed incorporation, formation, annexation, or exclusion and of alternative courses of action on the cost and adequacy of services and controls in the area and adjacent areas. "Services," as used in this subdivision, refers to governmental services whether or not the services are services which would be provided by local agencies subject to this division, and includes the public facilities necessary to provide those services.	<b>Consistent:</b> The proposed Master Plan consists of the development of 305 dwelling units and associated parks and infrastructure. Such uses require urban levels of public services, which currently are not provided to the project site. The project applicant will be obligated to pay the full or proportionate cost of all infrastructure improvements necessary to serve these proposed uses. Mitigation included as a part of this EIR would ensure infrastructure improvements implemented by the project applicant are appropriately designed or	<b>Consistent:</b> The proposed Master Plan consists of the development of 4,781 dwelling units, 7.76 million square feet of non-residential uses and associated parks and infrastructure. Such uses require urban levels of public services, which currently are not provided to the project site. The project applicant will be obligated to pay the full or proportionate cost of all infrastructure improvements necessary to serve these proposed uses. Mitigation included as a part of this EIR would ensure infrastructure improvements implemented by the project applicant are

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
		compensated to maintain service levels. Refer to Section 3.15, Public Services and Utilities for further discussion.	appropriately designed or compensated to maintain service levels. Refer to Section 3.15, Public Services and Utilities for further discussion.
3	The effect of the proposed action and of alternative actions, on adjacent areas, on mutual social and economic interests, and on the local governmental structure of the county.	<p><b>Consistent:</b> The proposed Master Plan would facilitate the development of higher and better uses within the project boundaries. This would be expected to yield economic benefits in form of new jobs, an expanded tax base, and greater economic activity.</p> <p>The proposed Master Plan would further social interests—albeit indirectly—largely as a result of the economic benefits. For example, the economic benefits (e.g., new jobs and tax revenues) may yield advancements in local health, safety, and welfare.</p> <p>In terms of impacts on the local governmental structure of the County, the primary change is that project site would fall under the jurisdiction of the City of Patterson. The project site is currently within the City of Patterson</p>	<p><b>Consistent:</b> The proposed Master Plan would facilitate the development of higher and better uses within the project boundaries. This would be expected to yield economic benefits in form of new jobs, an expanded tax base, and greater economic activity.</p> <p>The proposed Master Plan would further social interests—albeit indirectly—largely as a result of the economic benefits. For example, the economic benefits (e.g., new jobs and tax revenues) may yield advancements in local health, safety, and welfare.</p> <p>In terms of impacts on the local governmental structure of the County, the primary change is that project site would fall under the jurisdiction of the City of Patterson. The project site is currently within the City of Patterson</p>

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
		General Plan’s Planning Area and is designated for urban use; thus, it had been previously contemplated that this area would ultimately join the City of Patterson at a future, undetermined date. As such, this would not represent a significant impact on the local governmental structure of the County.	General Plan’s Planning Area and is designated for urban use; thus, it had been previously contemplated that this area would ultimately join the City of Patterson at a future, undetermined date. As such, this would not represent a significant impact on the local governmental structure of the County.
4	The conformity of both the proposal and its anticipated effects with both the adopted commission policies on providing planned, orderly, efficient patterns of urban development, and the policies and priorities set forth in Section 56377. (Section 56377 is reproduced below)	<b>Consistent:</b> The Master Plan area contains 61.22 acres of Prime Farmland and 0.26 acre of Farmland of Statewide Importance, for a total of 61.48 acres of Important Farmland. Buildout of the proposed Master Plan would result in the conversion of this farmland acreage to non-agricultural use. This conversion would be consistent with Section 56377 for the following reasons: 1) The proposed Master Plan contains phasing provisions that are intended to allow for the logical and orderly development of urban uses within the project boundaries.	<b>Consistent:</b> The Master Plan area contains 973.01 acres of Prime Farmland, 60.40 acres of Unique Farmland, and 151.49 acres of Farmland of Statewide Importance, for a total of 1,184.9 acres of Important Farmland. Buildout of the proposed Master Plan would result in the conversion of this farmland acreage to non-agricultural use. This conversion would be consistent with Section 56377 for the following reasons: 1) The proposed Master Plan contains phasing provisions that are intended to allow for the logical and orderly development of urban uses within the project
56377	In reviewing and approving or disapproving proposals which could reasonably be expected to induce, facilitate, or lead to the conversion of existing open-space lands to uses other than open-space uses, the commission shall consider all of the following policies and priorities: (a) Development or use of land for other than open-space uses shall be guided away from existing prime agricultural lands in open-space use toward areas containing nonprime agricultural lands, unless that action would not promote the planned, orderly, efficient development of an area. (b) Development of existing vacant or nonprime agricultural lands for urban uses within the existing jurisdiction of a local agency		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
	<p>or within the sphere of influence of a local agency should be encouraged before any proposal is approved which would allow for or lead to the development of existing open-space lands for non-open-space uses which are outside of the existing jurisdiction of the local agency or outside of the existing sphere of influence of the local agency.</p>	<p>Economic conditions will dictate the exact timing and characteristics of each phase. As such, it would be expected that less economically viable agricultural land would be developed first and economically viable, prime agricultural land would be developed later.</p> <p>2) The project area is located adjacent to the existing West Patterson Business Park to the east and I-5 to the west. Implementation of the proposed Master Plan would annex the project site into the City of Patterson and its sphere of influence. Although the Master Plan contains vacant, nonprime agricultural lands that could support a portion of the proposed Master Plan’s uses. As such, there are no existing vacant or nonprime agricultural lands of a similar area and land use</p>	<p>boundaries. Economic conditions will dictate the exact timing and characteristics of each phase. As such, it would be expected that less economically viable agricultural land would be developed first and economically viable, prime agricultural land would be developed later.</p> <p>2) The project area is located adjacent to the existing West Patterson Business Park to the east and I-5 to the west. Implementation of the proposed Master Plan would annex the project site into the City of Patterson and its sphere of influence. Although the Master Plan contains vacant, nonprime agricultural lands that could support a portion of the proposed Master Plan’s uses. As such, there are no existing vacant or nonprime agricultural lands of a similar area</p>

No.	Factor		Consistency Determination	
			Baldwin Master Plan	Zacharias Master Plan
			<p>designation currently available for development within Patterson that would accommodate all of the uses contemplated by the proposed Master Plan. 3) The project site is within the City of Patterson General Plan Area; therefore, its development has been accounted and planned for in the General Plan.</p>	<p>and land use designation currently available for development within Patterson that would accommodate all of the uses contemplated by the proposed Master Plan. Furthermore, approximately 70 percent of the West Patterson Business Park is developed or entitled for development; therefore, it reasonable to expect that economic factors would create demand for expansion of the business park. 3) The project site is within the City of Patterson General Plan Area; therefore, its development has been accounted and planned for in the General Plan.</p>
5	The effect of the proposal on maintaining the physical and economic integrity of agricultural lands, as defined by Section 56016. (Section 56016 is reproduced below)		<b>Consistent:</b> The Master Plan area contains 61.22 acres of Prime Farmland and 0.26 acre of Farmland of Statewide Importance, for a total of 61.48 acres of Important Farmland.	<b>Consistent:</b> The Master Plan area contains 973.01 acres of Prime Farmland, 60.40 acres of Unique Farmland, and 151.49 acres of Farmland of Statewide Importance, for a total of 1,184.9 acres of Important Farmland.
	56016	“Agricultural lands” means land currently used for the purpose of producing an agricultural commodity for commercial purposes, land left fallow under a crop rotational program, or land enrolled in an agricultural subsidy or set-aside program.		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
		<p>The Master Plan contains phasing provisions that are intended to allow for the logical and orderly development of urban uses within the project boundaries. Economic conditions will dictate the exact timing and characteristics of each phase. As such, these phasing provisions would allow for the continued use of agricultural lands until the point that higher and better uses are pursued. This is consistent with the objective of maintaining the physical and economic integrity of agricultural lands.</p>	<p>The Master Plan contains phasing provisions that are intended to allow for the logical and orderly development of urban uses within the project boundaries. Economic conditions will dictate the exact timing and characteristics of each phase. As such, these phasing provisions would allow for the continued use of agricultural lands until the point that higher and better uses are pursued. This is consistent with the objective of maintaining the physical and economic integrity of agricultural lands.</p>
6	<p>The definiteness and certainty of the boundaries of the territory, the nonconformance of proposed boundaries with lines of assessment or ownership, the creation of islands or corridors of unincorporated territory, and other similar matters affecting the proposed boundaries.</p>	<p><b>Consistent:</b> The Master Plan consists of a single parcel totaling 68.7 gross acres. The Master Plan area is bounded by the Delta-Mendota Canal (west), Tank Road and the City of Patterson Corporation Yard (north), and agricultural land (east and south). The boundaries follow defined features and would not create islands or corridors of unincorporated territory. As such, annexation of the project site would be considered logical and orderly.</p>	<p><b>Consistent:</b> The Master Plan consists of multiple parcels totaling 1,227.1 gross acres. The Master Plan area is bounded by Rogers Road (west), Zacharias Road (north), the California Northern Railroad tracks and Ward Avenue (east) and the existing Patterson city limits (south). The boundaries follow defined features and would not create islands or corridors of unincorporated territory. As such, annexation of the project site would be</p>

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
			considered logical and orderly.
7	Consistency with city or county general and specific plans.	<b>Consistent:</b> The proposed Master Plan is consistent with the City of Patterson General Plan. Refer to Impact LU-1.	<b>Consistent:</b> The proposed Master Plan is consistent with the City of Patterson General Plan. Refer to Impact LU-1.
8	The sphere of influence of any local agency which may be applicable to the proposal being reviewed.	<b>Consistent:</b> The proposed Master Plan would include the expansion of the City of Patterson Sphere of Influence to include the proposed annexation area. The Master Plan area is currently within the City of Patterson’s General Plan Area.	<b>Consistent:</b> The proposed Master Plan would include the expansion of the City of Patterson Sphere of Influence to include the proposed annexation area. The Master Plan area is currently within the City of Patterson’s General Plan Area.
9	The comments of any affected local agency or other public agency.	<b>Consistent:</b> The Draft EIR will be circulated to relevant federal, state, and agencies. Responses to comments will be provided in the Final EIR.	<b>Consistent:</b> The Draft EIR will be circulated to relevant federal, state, and agencies. Responses to comments will be provided in the Final EIR.
10	The ability of the newly formed or receiving entity to provide the services which are the subject of the application to the area, including the sufficiency of revenues for those services following the proposed boundary change.	<b>Consistent:</b> The Master Plan area will be served with municipal services provided by the City of Patterson for fire/emergency medical services, police, water, sewer, and storm drainage. The Master Plan describes the service and infrastructure to be implemented. Water, sewer, and storm drain analysis have been completed to ensure the adequacy of proposed and existing facilities.	<b>Consistent:</b> The Master Plan area will be served with municipal services provided by the City of Patterson for fire/emergency medical services, police, water, sewer, and storm drainage. The Master Plan describes the service and infrastructure to be implemented. Water, sewer, and storm drain analysis have been completed to ensure the adequacy of proposed and existing facilities.

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
		The Draft EIR addresses impacts to fire/emergency medical services and police and proposed mitigation as necessary to ensure sufficient service levels are maintained. Refer to Section 3.13, Public Services and Section 3.15, Utilities for further discussion.	The Draft EIR addresses impacts to fire/emergency medical services and police and proposed mitigation as necessary to ensure sufficient service levels are maintained. Refer to Section 3.13, Public Services and Section 3.15, Utilities for further discussion.
11	Timely availability of water supplies adequate for projected needs as specified in Section 65352.5. (Section 65352.5 is reproduced below)	<b>Consistent:</b> A Water Supply Assessment has been prepared that indicates long-term water supplies are available to serve the proposed Master Plan. Refer to Section 3.15, Utilities for further discussion.	<b>Consistent:</b> A Water Supply Assessment has been prepared that indicates long-term water supplies are available to serve the proposed Master Plan. Refer to Section 3.15, Utilities for further discussion.
	<p>65352.5.</p> <p>(a) The Legislature finds and declares that it is vital that there be close coordination and consultation between California’s water supply agencies and California’s land use approval agencies to ensure that proper water supply planning occurs in order to accommodate projects that will result in increased demands on water supplies.</p> <p>(b) It is, therefore, the intent of the Legislature to provide a standardized process for determining the adequacy of existing and planned future</p>		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
	<p>water supplies to meet existing and planned future demands on these water supplies.</p> <p>(c) Upon receiving, pursuant to Section 65352, notification of a city’s or a county’s proposed action to adopt or substantially amend a general plan, a public water system, as defined in Section 116275 of the Health and Safety Code, with 3,000 or more service connections, shall provide the planning agency with the following information, as is appropriate and relevant:</p> <p>(1) The current version of its urban water management plan, adopted pursuant to Part 2.6 (commencing with Section 10610) of Division 6 of the Water Code.</p> <p>(2) The current version of its capital improvement program or plan, as reported pursuant to</p>		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
	<p>Section 31144.73 of the Water Code.</p> <p>(3) A description of the source or sources of the total water supply currently available to the water supplier by water right or contract, taking into account historical data concerning wet, normal, and dry runoff years.</p> <p>(4) A description of the quantity of surface water that was purveyed by the water supplier in each of the previous five years.</p> <p>(5) A description of the quantity of groundwater that was purveyed by the water supplier in each of the previous five years.</p> <p>(6) A description of all proposed additional sources of water supplies for the water supplier, including the estimated dates by which these additional sources should be available and the quantities of additional water supplies that are being proposed.</p>		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
	<p>(7) A description of the total number of customers currently served by the water supplier, as identified by the following categories and by the amount of water served to each category:</p> <p>(A) Agricultural users.</p> <p>(B) Commercial users.</p> <p>(C) Industrial users.</p> <p>(D) Residential users.</p> <p>(8) Quantification of the expected reduction in total water demand, identified by each customer category set forth in paragraph (7), associated with future implementation of water use reduction measures identified in the water supplier's urban water management plan.</p> <p>(9) Any additional information that is relevant to determining the adequacy of existing and planned future water supplies to meet existing and planned future demands on these water supplies.</p>		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
12	The extent to which the proposal will affect a city or cities and the county in achieving their respective fair shares of the regional housing needs as determined by the appropriate council of governments consistent with Article 10.6 (commencing with Section 65580) of Chapter 3 of Division 1 of Title 7. (Section 65580 is reproduced below.)	<p><b>Consistent:</b> The City of Patterson General Plan designates the Master Plan as “Low Density Residential.” The General Plan Housing Element identifies this area as a potential housing site for affordable housing. Therefore, the proposed Master Plan would further the City’s ability to meet its regional housing requirements.</p>	<p><b>Consistent:</b> The City of Patterson General Plan designates the Master Plan as “Low Density Residential.” The General Plan Housing Element identifies this area as a potential housing site for affordable housing. Therefore, the proposed Master Plan would further the City’s ability to meet its regional housing requirements.</p>
65580.	<p>The Legislature finds and declares as follows:</p> <p>(a) The availability of housing is of vital statewide importance, and the early attainment of decent housing and a suitable living environment for every Californian, including farmworkers, is a priority of the highest order.</p> <p>(b) The early attainment of this goal requires the cooperative participation of government and the private sector in an effort to expand housing opportunities and accommodate the housing needs of Californians of all economic levels.</p> <p>(c) The provision of housing affordable to low- and moderate-income households requires the cooperation of all levels of government.</p> <p>(d) Local and state governments have a responsibility to use the powers vested in them to facilitate the improvement and development of housing to make adequate provision for the housing needs of</p>		

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
	<p>all economic segments of the community.</p> <p>(e) The Legislature recognizes that in carrying out this responsibility, each local government also has the responsibility to consider economic, environmental, and fiscal factors and community goals set forth in the general plan and to cooperate with other local governments and the state in addressing regional housing needs.</p>		
13	Any information or comments from the landowner or owners, voters, or residents of the affected territory.	<p><b>Consistent:</b> The Master Plan is controlled by one property owner. Property owners, voters, and residents in the vicinity of the project site will be noticed about the availability of the CEQA documents and public meetings. These individuals will have the opportunity to submit comments to both the City of Patterson and Stanislaus LAFCo.</p>	<p><b>Consistent:</b> The Master Plan area is controlled by more than 30 separate property owners. The Master Plan process is being driven by four development groups (Zacharias Ranch, TFP Development, Lakeside Hills, and Keystone Ranch) that control 1,017 acres of the 1,227-acre area. The 143-acre Ranchette Triangle contains more than 20 separate property owners who have not participated in the Master Plan process. The Master Plan allows these property owners to continue existing land use activities after annexation into the City of Patterson.</p> <p>Property owners,</p>

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
			voters, and residents in the vicinity of the project site will be noticed about the availability of the CEQA documents and public meetings. These individuals will have the opportunity to submit comments to both the City of Patterson and Stanislaus LAFCo.
14	Any information relating to existing land use designations.	<b>Consistent:</b> The City of Patterson General Plan designates the Master Plan area as land use as “Low Density Residential.” The Stanislaus County General Plan designates the project site as Agriculture. The Stanislaus County Zoning Ordinance designates the project site as A-2 (General Agriculture). Note that the City’s land use designations would be legally binding following annexation.	<b>Consistent:</b> The City of Patterson General Plan designates the Master Plan area as land use as “Low Density Residential.” The Stanislaus County General Plan designates the project site as Agriculture and Urban Transition. The Stanislaus County Zoning Ordinance designates the Master Plan as A-2 (General Agriculture) and R-A (Rural Residential). Note that the City’s land use designations would be legally binding following annexation.
15	The extent to which the proposal will promote environmental justice. As used in this subdivision, “environmental justice” means the fair treatment of people of all races, cultures, and incomes with respect to the location of public facilities and the provision of public services	<b>Consistent:</b> Although the proposed Master Plan does not purport to alleviate any alleged environmental injustices, it would facilitate the logical and orderly development of the western portion of the City Patterson, including creating new economic opportunities and	<b>Consistent:</b> Although the proposed Master Plan does not purport to alleviate any alleged environmental injustices, it would facilitate the logical and orderly development of the western portion of the City Patterson, including creating new economic opportunities and

No.	Factor	Consistency Determination	
		Baldwin Master Plan	Zacharias Master Plan
		implementing improvements to infrastructure (e.g., water, sewer, storm drainage, roadways, etc.) that advances the interests of public health, safety, and welfare, and the greater good of the community. These characteristics are consistent with the objective of fair treatment of all people with respect to the location of public facilities and the provision of public services.	implementing improvements to infrastructure (e.g., water, sewer, storm drainage, roadways, etc.) that advances the interests of public health, safety, and welfare, and the greater good of the community. These characteristics are consistent with the objective of fair treatment of all people with respect to the location of public facilities and the provision of public services.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

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## 3.11 - Noise

### 3.11.1 - Introduction

This section describes the existing noise setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on noise modeling performed by FirstCarbon Solutions (FCS). The noise modeling output is included in this Draft EIR as Appendix G.

### 3.11.2 - Environmental Setting

#### Characteristics of Noise

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Only audible changes in existing ambient or background noise levels are considered potentially significant.

A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear. Because decibels are logarithmic units, they cannot be added or subtracted by ordinary arithmetic means. For example, if one noise source produces a noise level of 70 dB, the addition of another noise source with the same noise level would not produce 140 dB; rather, they would combine to produce a noise level of 73 dB.

#### Noise Descriptors

There are many ways to rate noise for various time-periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level ( $L_{eq}$ ) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the  $L_{eq}$  and Community Noise Equivalent Level (CNEL) or the day-night average level ( $L_{dn}$ ) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly  $L_{eq}$  for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours).  $L_{dn}$  is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and  $L_{dn}$  are within one dBA of each other and are normally exchangeable.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level ( $L_{max}$ ), which is the highest exponential time-averaged sound level that occurs during a

stated time-period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by  $L_{\max}$  for short-term noise impacts.  $L_{\max}$  reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

### **Noise Propagation**

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as an air conditioning condenser, a piece of construction equipment, or an idling truck, radiates uniformly outward as it travels away from the source in a spherical pattern.

The attenuation or sound drop-off rate is dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA per each doubling of the distance (dBA/DD) is typically observed over soft ground with landscaping, as compared with a 6 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources, such as traffic noise on a roadway, a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3 dBA/DD drop-off rate for hard-site conditions.

### **Traffic Noise**

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the Federal Highway Administration (FHWA) community noise assessment criteria, this change is “barely perceptible;” for reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

### **Stationary Noise**

A stationary noise producer is any entity in a fixed location that emits noise. Examples of stationary noise sources include machinery, engines, energy production, and other mechanical or powered equipment and activities such as loading and unloading or public assembly that may occur at commercial, industrial, manufacturing, or institutional facilities. Furthermore, while noise generated by the use of motor vehicles over public roads is preempted from local regulation, although the use of these vehicles is considered a stationary noise source when operated on private property such as at a construction site, a truck terminal, or warehousing facility. The emitted noise from the producer can be mitigated to acceptable levels either at the source or on the adjacent property through the

use of proper planning, setbacks, block walls, acoustic-rated windows, dense landscaping, or by changing the location of the noise producer.

The effects of stationary noise depend on factors such as characteristics of the equipment and operations, distance and pathway between the generator and receptor, and weather. Stationary noise sources may be regulated at the point of manufacture (e.g., equipment or engines), with limitations on the hours of operation, or with provision of intervening structures, barriers or topography.

Construction activities are a common source of stationary noise. Construction-period noise levels are higher than background ambient noise levels but eventually cease once construction is complete. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction site, and therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table 3.11-1 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

**Table 3.11-1: Typical Construction Equipment Maximum Noise Levels,  $L_{max}$**

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Impact Pile Driver	95
Auger Drill Rig	85
Vibratory Pile Driver	95
Jackhammers	85
Pneumatic Tools	85
Pumps	77
Scrapers	85
Cranes	85
Portable Generators	82
Rollers	85
Bulldozers	85
Tractors	84
Front-End Loaders	80
Backhoe	80
Excavators	85
Graders	85
Air Compressors	80

Type of Equipment	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Dump Truck	84
Concrete Mixer Truck	85
Pickup Truck	55

Source: FHWA 2006. Highway Construction Noise Handbook, August.

### Characteristics of Vibration

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but in extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room, and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels—denoted as LV—and is based on the reference quantity of 1 micro inch per second. To distinguish these vibration levels referenced in decibels from noise levels referenced in decibels, the unit is written as “VdB.”

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. When assessing annoyance from groundborne vibration, vibration is typically expressed as rms velocity in units of decibels of 1 micro-inch per second, with the unit written in VdB. Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. Human perception to vibration starts at levels as low as 67 VdB. Annoyance due to vibration in residential settings starts at approximately 70 VdB.

Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. Construction activities, such as blasting, pile driving and operating heavy earthmoving equipment, are common sources of groundborne vibration. Construction vibration impacts on building structures are generally assessed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 3.11-2.

**Table 3.11-2: Vibration Levels of Construction Equipment**

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer—small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer—Large	0.089	87
Caisson drilling	0.089	87
Vibratory Roller (small)	0.101	88
Compactor	0.138	90
Clam shovel drop	0.202	94
Vibratory Roller (large)	0.210	94
Pile Driver (impact-typical)	0.644	104
Pile Driver (impact-upper range)	1.518	112

Source: Compilation of scientific and academic literature, generated by FTA and FHWA.

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Factors that influence groundborne vibration include:

- Vibration source: Type of activity or equipment, such as impact or mobile, and depth of vibration source;
- Vibration path: Soil type, rock layers, soil layering, depth to water table, and frost depth; and
- Vibration receiver: Foundation type, building construction, and acoustical absorption.

Among these factors that influence groundborne vibration, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface, and can result in groundborne vibration problems at large distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground’s surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a “push-pull” fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil type, but it has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests. The vibration level (PPV) at a distance from a point source can generally be calculated using the vibration reference equation:

$$PPV = PPV_{ref} * (25/D)^n \text{ (in/sec)}$$

Where:

- PPV<sub>ref</sub> = reference measurement at 25 feet from vibration source
- D = distance from equipment to the receptor
- n = vibration attenuation rate through ground

According to Chapter 12 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment manual (2006), an “n” value of 1.5 is recommended to calculate vibration propagation through typical soil conditions.

### Existing Traffic Noise Levels

Existing traffic noise levels along selected roadway segments in the proposed project vicinity were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). Site-specific information is entered, such as roadway traffic volumes, roadway active width, source-to-receiver distances, travel speed, noise source and receiver heights, and the percentages of automobiles, medium trucks, and heavy trucks that the traffic is made up of throughout the day, amongst other variables. The modeled average daily traffic (ADT) volumes were obtained by multiplying the PM

peak-hour intersection traffic volumes from the proposed project-specific traffic study by a factor of ten. The model inputs and outputs, including the 60 dBA, 65 dBA, and 70 dBA CNEL traffic noise contour distances, are provided in Appendix H. A summary of the modeling results is shown in Table 3.11-3.

**Table 3.11-3: Existing Traffic Noise Levels**

Roadway Segment	ADT	Center-line to 70 CNEL (feet)	Center-line to 65 CNEL (feet)	Center-line to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Rogers Road - Sperry Avenue to Keystone Pacific Parkway	5,400	< 50	< 50	< 50	58.0
Rogers Road - Keystone Pacific Parkway to Zacharias Road	2,100	< 50	< 50	< 50	57.4
Rogers Road - Zacharias Road to Highway 33	2,000	< 50	< 50	55	59.9
Zacharias Road - Rogers Road to Baldwin Road	510	< 50	< 50	< 50	54.0
Zacharias Road - Baldwin Road to Highway 33	820	< 50	< 50	< 50	56.0
Baldwin Road - Zacharias Road to Highway 33	1,400	< 50	< 50	< 50	58.3
Baldwin Road - Keystone Pacific Parkway to Zacharias Road	1,800	< 50	< 50	< 50	56.7
Baldwin Road - Sperry Avenue to Keystone Pacific Parkway	3,400	< 50	< 50	53	58.9
Baldwin Road - south of Sperry Avenue	1,500	< 50	< 50	< 50	52.5
Highway 33 - Zacharias Road to Eucalyptus Avenue	8,100	< 50	< 50	92	63.3
Highway 33 - Eucalyptus Avenue to Ward Avenue	7,900	< 50	< 50	91	63.2
Highway 33 - Ward Avenue to Olive Avenue	5,900	< 50	< 50	75	61.9
Ward Avenue - south of Highway 33	2,400	< 50	< 50	< 50	54.5
Sperry Avenue - Rogers Road to Park Center Drive	9,700	< 50	74	157	66.2
Sperry Avenue - Park Center Drive to Baldwin Road	9,700	< 50	74	157	66.2
Sperry Avenue - Baldwin Road to American Eagle Avenue	9,600	< 50	64	130	63.9
Sperry Avenue - American Eagle Avenue to Ward Avenue	11,200	< 50	58	117	63.2
Note: ADT = Average Daily Traffic Source: FirstCarbon Solutions 2020.					

The modeling results show that the highest traffic noise levels adjacent to the proposed project site occur along Highway 33 from Zacharias Road to Eucalyptus Avenue, with traffic noise levels ranging up to approximately 63.3 dBA CNEL at the northeastern boundary of the proposed project site.

### 3.11.3 - Regulatory Framework

#### Federal

##### **Noise Control Act**

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting State and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees.

Among the agencies now regulating noise are the Occupational Safety and Health Administration (OSHA), which limits noise exposure of workers to 90 dB  $L_{eq}$  or less for 8 continuous hours or 105 dB  $L_{eq}$  or less for 1 continuous hour; the United States Department of Transportation (USDOT), which assumed a significant role in noise control through its various operating agencies; and the Federal Aviation Administration (FAA), which regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the FTA. Transit noise is regulated by the federal Urban Mass Transit Administration, while freeways that are part of the interstate highway system are regulated by the FHWA. Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway, or alternatively, that developments are planned and constructed in such a manner that minimize potential noise impacts.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, local jurisdictions are limited to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

##### **Federal Transit Administration**

The proposed project is not subject to the regulation requirements of the FTA; however, the FTA’s vibration impact criteria are accepted industry-wide as the best vibration impact guidelines when a local governing agency does not have vibration standards of its own.

The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment Manual, dated September 2018. The FTA guidelines include thresholds for construction vibration impacts for various structural categories as shown in Table 3.11-4.

**Table 3.11-4: Federal Transit Administration Construction Vibration Impact Criteria**

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced-Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non Engineer Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90

Source: FTA 2018. Transit Noise and Vibration Impact Assessment Manual. September.

### State

The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the “State Noise Insulation Standard,” it requires buildings to meet performance standards through design and/or building materials that would offset any noise source in the vicinity of the receptor. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL.

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. These guidelines rank noise and land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

### Local

The project site is located within the City of Patterson, in the County of Stanislaus. The City of Patterson addresses noise in the Health and Safety Element of its General Plan, adopted by the City of Patterson in 2010, and in the Noise Control Chapter of its Municipal Code, approved by the City in 2018.

#### **City of Patterson 2010 General Plan**

The City of Patterson adopted its General Plan in November of 2010. The objective of the Health and Safety Element’s noise section is to protect City residents from the harmful and undesirable effects of excessive noise. To assist with meeting this objective, the City’s Plan establishes land use noise

compatibility guidelines for new development and noise performance standards for sensitive land uses affected by transportation and non-transportation noise sources.

The City of Patterson establishes its land use noise compatibility guidelines for new developments in Figure HS-1 of its General Plan (shown in Table 3.11-5 below). Because the proposed project will include the development of various land use types, more than one land use category from this figure is applicable to the proposed project.

The City of Patterson rates land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable. If noise levels at a project site are within the conditionally acceptable range, new construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design. Development of project sites with noise levels in the normally unacceptable range should generally be discouraged. However, if new construction or development does proceed under this scenario, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design, and outdoor areas must be shielded.

**Table 3.11-5: Land Use Noise Compatibility Guidelines for New Development (dBA L<sub>dn</sub> or CNEL)**

Land Use Category	55	60	65	70	75	80
Residential	Normally Acceptable		Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
	Normally Acceptable					
	Normally Acceptable		Normally Unacceptable		Clearly Unacceptable	
Transient Lodging— Motels, Hotels	Normally Acceptable		Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
	Normally Acceptable					
	Normally Acceptable		Normally Unacceptable		Clearly Unacceptable	
Schools, Libraries, Churches, Hospitals, Nursing Homes	Normally Acceptable		Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
	Normally Acceptable					
	Normally Acceptable		Normally Unacceptable		Clearly Unacceptable	
Auditoriums, Concert Halls, Amphitheaters, Sports Arena	Conditionally Acceptable				Clearly Unacceptable	Clearly Unacceptable
	Conditionally Acceptable					
	Conditionally Acceptable				Clearly Unacceptable	
Playgrounds, Neighborhood Parks	Normally Acceptable			Normally Unacceptable	Clearly Unacceptable	Clearly Unacceptable
	Normally Acceptable					



**Table 3.11-6: Noise Level Performance Standards For New Projects Affected By Or Including Non-Transportation Sources**

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly Leq, Db	50	45
Maximum level, Db	70	65
Each of the noise levels specified above shall be lowered by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings). Source: City of Patterson General Plan 2018		

Additionally, the City’s General Plan establishes noise performance standards for new or planned noise-sensitive land uses affected by transportation noise sources. According to this standard, new development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3 (shown in Table 3.11-7 below), unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-3.

**Table 3.11-7: Noise Level Performance Standards For New Projects Affected By Or Including Transportation Sources**

Land Use	Outdoor Activity Areas <sup>1</sup>	Interior Spaces
	Ldn/CNEL, Db	Leq, Db <sup>2</sup>
Residential	60 <sup>3</sup>	45
Transient Lodging	60 <sup>3</sup>	45
Hospitals, Nursing Homes	60 <sup>3</sup>	45
Theaters, Auditoriums, Music Halls		35
Churches, Meeting Halls	60 <sup>3</sup>	40
Office Buildings	60 <sup>3</sup>	45
Schools, Libraries, Museums		45
Playgrounds, Neighborhood Parks	70	
<sup>1</sup> Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. <sup>2</sup> As determined for a typical worst-case hour during periods of use. <sup>3</sup> Where it is not possible to reduce noise in outdoor activity areas to 60 Db Ldn/CNEL or less using a practical application of the best available noise reduction measures, an exterior noise level of up to 65 Db Ldn/CNEL may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table. Source: City of Patterson General Plan 2018.		

The Health and Safety Element of the City of Patterson 2010 General Plan contains policies that address noise. The following policies are applicable to the proposed project:

## **Policies**

- HS-5.1**      **Noise levels resulting from non-transportation sources.** New development of noise-sensitive uses shall not be allowed where the noise level due to nontransportation noise sources will exceed the noise level standards of Table HS-1, as measured immediately within the property line of the new development, unless effective noise mitigation measures have been incorporated into the development design to achieve the standards specified in Table HS-1.
- HS-5.2**      **Noise levels resulting from non-transportation noise sources.** Noise levels resulting from nontransportation noise sources shall be mitigated so as not to exceed the noise level standards of Table HS-1 as measured immediately within the property line of lands designated for noise-sensitive uses. This policy does not apply to noise sources associated with agricultural operations on lands zoned for agricultural uses.
- HS-5.4**      **Noise standards.** The feasibility of proposed projects with respect to existing and future transportation noise levels shall be evaluated by comparison to Figure HS-1.
- HS-5.5**      **Noise sensitive land uses.** New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected levels of noise from transportation noise sources which exceed the levels specified in Table HS-3, unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to the levels specified in Table HS-1.
- HS-5.6**      **Transportation noise sources and mitigation.** Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed the levels specified in Table HS-1 at outdoor activity areas or interior spaces of existing noise-sensitive land uses in either the incorporated or unincorporated areas.
- HS-5.7**      **Acoustical analysis required.** Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table HS-1 or the performance standards of Table HS-3, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

## **Patterson Municipal Code**

The Noise Control Chapter of the Patterson Municipal Code establishes an ordinance for permissible construction hours. This ordinance prohibits any person within a residential zone, or within a radius of five hundred feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile drive, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other construction type device between the hours of

10:00 p.m. of one day and 7:00 a.m. of the next day in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless beforehand a special permit authorizing exception to the above hours has been duly obtained from the officer or body of the city having the function to issue permits of this kind.

### 3.11.4 - Methodology

#### Traffic Noise Modeling Methodology

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions in the vicinity of the proposed project site. Traffic data used in the model was obtained from the Advanced Mobility Group Traffic Impact Study (TIS) prepared for the proposed project. The resultant noise levels were weighed and summed over a 24-hour period in order to determine the CNEL values. The FHWA-RD-77-108 Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level. Adjustments are then made to the reference energy mean emission level to account for the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway); the total ADT; and the percentage of ADT that flows during the day, evening, and night; the travel speed; the vehicle mix on the roadway; a percentage of the volume of automobiles, medium trucks, and heavy trucks; the roadway grade; the angle of view of the observer exposed to the roadway; and the site conditions (“hard” or “soft”) as they relate to the absorption of the ground, pavement, or landscaping.

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is “barely perceptible.” For reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

The model analyzed the noise impacts from the nearby roadways onto the proposed project vicinity, which consists of the area that has the potential of being impacted from the on-site noise sources as well as the proposed project-generated traffic on the nearby roadways. The roadways were analyzed based on a single-lane-equivalent noise source combining both directions of travel. A single-lane-equivalent noise source exists when the vehicular traffic from all lanes is combined into a theoretical single lane that has a width equal to the distance between the two outside lanes of a roadway, which provides almost identical results to analyzing each lane separately where elevation changes are minimal.

### 3.11.5 - Thresholds of Significance

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, noise impacts resulting from the implementation of the proposed project would be considered significant if the proposed project would result in:

- a) A significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?
- b) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- c) Generation of excessive groundborne vibration or groundborne noise levels?
- d) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

It should be noted that the significance criteria question a), above, is from the Land Use and Planning section of the CEQA Guidelines Appendix G checklist questions. However, this question addresses impacts related to conflicts with land use plans, which would include project-related conflicts to the noise land use compatibility standards of the Noise Element of the General Plan. Therefore, these impacts are addressed here.

### 3.11.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the development of the proposed project and provides mitigation measures where appropriate.

#### Noise Levels That Would Conflict with Any Land Use Plan, Policy, or Regulation

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**Impact NOI-1:**      **Buildout of the Master Plans may cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

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#### ***Impact Analysis***

##### *Zacharias and Baldwin Master Plans*

A significant impact would occur if implementation of the proposed project would expose the proposed noise sensitive receptors to noise levels in excess of the City's exterior noise level standards for new land use development. For example, the City considers environments with ambient noise levels of up to 60 dBA CNEL to be "normally acceptable" for new residential land use development, and environments with noise levels above 60 dBA and up to 70 dBA CNEL are considered "conditionally acceptable" for new residential land use development.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate existing and future project-related traffic noise conditions along modeled roadway segments in the vicinity of the

proposed project site. The projected future traffic noise levels on roadways adjacent to the site were analyzed to determine compliance with the applicable noise and land use compatibility standards. Traffic modeling was performed using the data obtained from the proposed project-specific traffic impact study conducted by Advanced Mobility Group. This traffic impact study provides data for existing (2019) and cumulative (2040) conditions. The resultant noise levels were weighed and summed over a 24-hour period to determine the CNEL values. The traffic noise modeling input and output files—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are included in Appendix H. Table 3.11-8 shows a summary of the traffic noise levels for existing (2019), existing plus approved projects, existing plus approved projects plus proposed project, 2040 cumulative no project, 2040 cumulative plus project, and the 2040 cumulative plus project (with new Zacharias Avenue/Interstate 5 [I-5] interchange) conditions, as measured at 50 feet from the centerline of the outermost travel lane.

**Table 3.11-8: Project Traffic Noise Level Results**

	CNEL (dBA) 50 feet from Centerline of Outermost Lane					
	Existing	Existing Plus Approved Projects	Existing Plus Approved Projects Plus Proposed Project	2040 Cumulative No Project (dBA) CNEL	2040 Cumulative Plus Project (dBA) CNEL	2040 Cumulative Plus Project (with new Zacharias Avenue/I-5 interchange) (dBA) CNEL
Rogers Road - Sperry Avenue to Keystone Pacific Parkway	58.0	63.5	63.4	60.1	60.7	60.2
Rogers Road - Keystone Pacific Parkway to Zacharias Road	57.4	65.8	66.2	58.3	60.2	59.1
Rogers Road - Zacharias Road to Highway 33	59.9	66.4	69.1	60.1	64.4	63.4
Zacharias Road - Rogers Road to Baldwin Road	54.0	66.8	66.9	56.9	60.3	65.9
Zacharias Road - Baldwin Road to Highway 33	56.0	67.4	68.8	58.0	65.9	66.1
Baldwin Road - Zacharias Road to Highway 33	58.3	61.9	69.0	59.4	67.6	65.9
Baldwin Road - Keystone Pacific Parkway to Zacharias Road	56.7	59.8	67.9	57.4	65.1	65.0
Baldwin Road - Sperry Avenue to Keystone Pacific Parkway	58.9	60.6	64.8	60.4	65.3	65.1
Baldwin Road - south of Sperry Avenue	52.5	54.3	59.1	57.3	60.9	60.6
Highway 33 - Zacharias Road to Eucalyptus Avenue	63.3	67.8	67.5	63.4	65.3	64.5

	CNEL (dBA) 50 feet from Centerline of Outermost Lane					
	Existing	Existing Plus Approved Projects	Existing Plus Approved Projects Plus Proposed Project	2040 Cumulative No Project (dBA) CNEL	2040 Cumulative Plus Project (dBA) CNEL	2040 Cumulative Plus Project (with new Zacharias Avenue/I-5 interchange) (dBA) CNEL
Highway 33 - Eucalyptus Avenue to Ward Avenue	63.2	67.7	67.4	63.3	63.2	62.1
Highway 33 - Ward Avenue to Olive Avenue	61.9	65.3	65.8	62.5	65.0	65.8
Ward Avenue - south of Highway 33	54.5	58.7	62.1	54.5	60.6	61.6
Sperry Avenue - Rogers Road to Park Center Drive	66.2	65.7	66.7	67.6	67.7	67.4
Sperry Avenue - Park Center Drive to Baldwin Road	66.2	65.5	66.5	66.8	66.7	66.7
Sperry Avenue - Baldwin Road to American Eagle Avenue	63.9	64.5	66.4	65.2	65.7	65.6
Sperry Avenue - American Eagle Avenue to Ward Avenue	63.2	63.6	64.4	64.1	64.5	64.4
Notes: <sup>1</sup> Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather it assumes a worst case of having a direct line of site on flat terrain. Source: FCS, 2020.						

The highest traffic noise levels that would be experienced at the proposed project would occur on Zacharias Road between Baldwin Road and Highway 33 under Existing Plus Approved Projects Plus Proposed Project conditions. These traffic noise levels would range up to approximately 68.8 dBA CNEL as measured at 50 feet from the centerline of the nearest travel lane. Based on the proposed plan development areas, the nearest proposed residential façades could be located approximately 90 feet from the centerline of the roadway. At this distance, traffic noise levels would attenuate to below 64 dBA CNEL. These traffic noise levels are between 60 dBA and 70 dBA CNEL which the City considers to be “conditionally acceptable” for new residential land use developments.

Based on the United States Environmental Protection Agency (EPA) Protective Noise Levels,<sup>1</sup> a combination of walls, doors, and windows provided in accordance with State building code requirements for the proposed residential development would result in a 25 dBA in exterior-to-interior noise reduction with windows closed and a 15 dBA or more with windows open. With windows open, interior noise levels of the nearest proposed units to Highway 33 would not meet the interior noise standard of 45 dBA  $L_{eq}$  (i.e., 64 dBA–15 dBA = 49 dBA). This impact is potentially

<sup>1</sup> United States Environmental Protection Agency (EPA) 550/9-79-100, November 1978.

significant. Therefore, Mitigation Measure (MM) NOI-1 is included, which requires that the proposed project shall include a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods. The inclusion of the proposed air conditioning system would allow windows to remain closed and would provide attenuation of up to 25 dBA, which would be sufficient to reduce traffic noise levels to meet the interior noise level standard of 45 dBA  $L_{eq}$  (i.e., 64 dBA–25 dBA = 39 dBA). This mitigation measure would ensure that potentially impacted interior residential units would meet the interior noise level requirement of 45 dBA  $L_{eq}$ . Therefore, with implementation of MM NOI-1, future projected traffic noise impacts would be reduced to less than significant.

Thus, traffic noise levels adjacent to the proposed project site would not exceed noise levels that the City of Patterson considers acceptable for new residential land uses. As such, traffic noise would result in a less than significant impact for the proposed residential development.

Therefore, the impact related to noise land use compatibility standards consistency would be less than significant.

#### ***Level of Significance Before Mitigation***

Potentially significant impact.

#### ***Mitigation Measures***

**MM NOI-1** Prior to issuance of residential building permits for the Zacharias Master Plan, the applicant shall submit building plans to the City of Patterson for review and approval that demonstrate that each dwelling unit includes a code compliant mechanical ventilation system that would permit windows to remain closed for prolonged periods for all residential units within 100 feet of Zacharias Road, Baldwin Road, or State Route 33.

#### ***Level of Significance After Mitigation***

Less than significant impact.

#### **Substantial Noise Increase in Excess of Standards**

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**Impact NOI-2:** Buildout of the Master Plans may result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

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#### ***Impact Analysis***

This impact assesses construction and operational noise.

#### ***Baldwin and Zacharias Master Plans***

##### ***Construction***

A significant impact would occur if construction activities would result in a substantial increase in ambient noise levels outside of the City's permissible hours for construction that would result in annoyance or sleep disturbance of nearby sensitive receptors.

Noise impacts from construction activities would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

Two types of short-term noise impacts would occur during site preparation and project construction. The first type would result from the increase in traffic flow on local streets, associated with the transport of workers, equipment, and materials to and from the proposed project site. The transport of workers and construction equipment and materials to the proposed project site would incrementally increase noise levels on access roads leading to the site. Because workers and construction equipment would use existing routes, noise from passing trucks would be similar to existing vehicle-generated noise on these local roadways. Typically, a doubling of the average daily trip (ADT) hourly volumes on a roadway segment is required in order to result in an increase of 3 dBA in traffic noise levels; which, as discussed in the characteristics of noise discussion above, is the lowest change that can be perceptible to the human ear in outdoor environments. Project-related construction trips would not be expected to double the hourly traffic volumes along any roadway segment in the proposed project vicinity. For these reasons, short-term intermittent noise from trucks would be minor when averaged over a longer time-period. Therefore, short-term construction-related noise impacts associated with worker commute and equipment transport to the proposed project site would not exceed applicable significance thresholds and would be less than significant.

The second type of short-term noise impact is related to noise generated during site-preparation, grading, and construction activities. Construction is performed in discrete steps, each of which has its own mix of equipment, and consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on-site. Thus, the noise levels vary as construction progresses through each phase. Despite the variety in the types and sizes of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction noise ranges to be categorized by work phase. Table 3.11-1 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

The site preparation phase, which includes excavation and grading activities, generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery and compacting equipment, such as bulldozers, draglines, backhoes, front loaders, roller compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

The proposed project is expected to require the use of scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. Based on the information provided in Table 3.11-1, the maximum noise level generated by each scraper is assumed to be 85 dBA  $L_{max}$  at 50 feet from this equipment. Each bulldozer would generate 85 dBA  $L_{max}$  at 50 feet. The maximum noise level generated by graders is approximately 85 dBA  $L_{max}$  at 50 feet. Each doubling of sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA  $L_{max}$  at a distance of 50 feet from the acoustic center of a construction area. This would result in

a reasonable worst-case hourly average of 86 dBA  $L_{eq}$ . The acoustical center reference is used because construction equipment must operate at some distance from one another on a project site, and the combined noise level as measured at a point equidistant from the sources (acoustic center) would be the worst-case maximum noise level.

The closest noise-sensitive receptors to the proposed Zacharias Master Plan development areas are single-family residences located along the proposed project site's southern boundary. The closest residence could be located as close as 115 feet from the acoustic center of construction activity where multiple pieces of heavy construction equipment would potentially operate within the plan area. At this distance, worst-case construction noise levels could range up to approximately 83 dBA  $L_{max}$ , intermittently, and could have an hourly average of up to 79 dBA  $L_{eq}$ , at the façade of the nearest single-family residential home. These noise levels would be intermittent and would be reduced at a rate of 6 dB per doubling of distance as equipment moves over the proposed project site further from adjacent sensitive receptors.

The closest noise-sensitive receptors to the proposed Baldwin Master Plan development areas are single-family residences located northeast of the proposed project site's northern boundary. The closest residence could be located as close as 350 feet from the acoustic center of construction activity where multiple pieces of heavy construction equipment would potentially operate within the plan area. At this distance, worst-case construction noise levels could range up to approximately 83 dBA  $L_{max}$ , intermittently, and could have an hourly average of up to 69 dBA  $L_{eq}$ , at the façade of the nearest single-family residential home. These noise levels would be intermittent and would be reduced at a rate of 6 dB per doubling of distance as equipment moves over the proposed project site further from adjacent sensitive receptors.

Compliance with City's permissible construction hours would reduce the effects of noise produced by construction activities on longer-term (hourly or daily) ambient noise levels and would reduce potential impacts that could result in annoyance or sleep disturbances at nearby sensitive receptors. The City of Patterson limits noise-producing construction activities located within five hundred feet of a residential zone to the hours between 7:00 a.m. and 10:00 p.m., daily. Restricting construction activities to these time-periods and implementing the best management noise reduction techniques and practices outlined in MM NOI-2, would ensure that construction noise levels would not result in a substantial temporary increase in ambient noise levels that could result in annoyance or sleep disturbance of nearby sensitive receptors. Therefore, potential short-term construction noise impacts on receptors in project vicinity would be reduced to a less than significant level.

#### *Operation*

The proposed project will result in an increase in traffic on local roadway segments in the proposed project vicinity. In addition, implementation of the proposed project would introduce new stationary noise sources to the ambient noise environment in the proposed project vicinity, including parking lot activities and new mechanical ventilation equipment. The potential for a substantial increase in ambient noise levels resulting from these noise sources is analyzed below.

### Mobile Source Noise Impacts

The City of Patterson also establishes noise level performance standards for new projects affected by or including transportation sources. The maximum noise threshold for outdoor activity areas is 60 CNEL, and the maximum noise threshold for interior spaces is 45 dBA  $L_{eq}$ .

The City of Patterson does not define “substantial increase;” therefore, for purpose of this analysis, a substantial increase is based on the following criteria. As noted in the characteristics of noise discussion, audible increases in noise levels generally refer to a change of 3 dBA or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. A change of 5 dBA is considered the minimum readily perceptible change to the human ear in outdoor environments. Therefore, for purposes of this analysis, a significant impact would occur if the proposed project would cause the CNEL to increase by 5 dBA or greater *and* thereby cause the CNEL in the proposed project vicinity to exceed conditionally acceptable levels for receiving land uses.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate existing and future project-related traffic noise conditions along modeled roadway segments in the vicinity of the proposed project site. The projected future traffic noise levels on roadways adjacent to the site were analyzed to determine compliance with the City’s noise and land use compatibility standards. Traffic modeling was performed using the data obtained from the proposed project-specific traffic impact study conducted by Advanced Mobility Group. This traffic impact study provides data for Existing (2019), Existing Plus Approved Projects (2019), Cumulative (2040), and Cumulative (with new Zacharias Avenue/I-5 Interchange) conditions. The resultant noise levels were weighed and summed over a 24-hour period to determine the CNEL values. The traffic noise modeling input and output files—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are included in Appendix H. As shown previously, Table 3.11-8 shows a summary of the traffic noise levels for Existing (2019), Existing Plus Approved Projects, Existing Plus Approved Projects Plus Proposed Project, 2040 Cumulative No Project, 2040 Cumulative Plus Project, the 2040 Cumulative Plus Project (with new Zacharias Avenue/I-5 interchange) conditions, as measured at 50 feet from the centerline of the outermost travel lane.

As shown in Table 3.11-8, the highest traffic noise level increase with implementation of the proposed project would occur along Zacharias Road between Rogers Road and Baldwin Road under 2040 cumulative plus project (with new Zacharias Avenue/I-5 interchange) conditions. Along this roadway segment, the proposed project would result in traffic noise levels ranging up to approximately 63.4 dBA CNEL as measured at 50 feet from the centerline of the nearest travel lane, representing an increase of 9 dBA over 2040 cumulative no project conditions for this roadway segment. However, the resulting traffic noise levels of 63.4 dBA CNEL would still be within the City’s “conditionally acceptable” range for new residential land use developments. Furthermore, none of the modeled roadway segments would experience traffic noise levels that are in excess of the City’s conditionally acceptable land use compatibility standard for residential land uses of 70 dBA CNEL.

Therefore, implementation of the Master Plans would not result in a substantial permanent increase in traffic noise levels that would cause the CNEL to increase by 5 dBA or greater and thereby cause the CNEL in the proposed project vicinity to exceed conditionally acceptable levels for receiving land uses. Thus, traffic noise increase impacts associated with implementation of the Master Plans would be less than significant.

### **Stationary Operational Noise Impacts**

A significant impact would occur if project stationary noise sources would result in a substantial permanent increase in ambient noise levels that would exceed the following thresholds at the property line of any noise-sensitive land use in the proposed project vicinity:

- 50 dBA  $L_{eq}$  or 70 dBA  $L_{max}$  between the hours of 7:00 a.m. and 10:00 p.m.; or
- 45 dBA  $L_{eq}$  or 65 dBA  $L_{max}$  between the hours of 10:00 p.m. and 7:00 a.m.

The proposed project would include new stationary noise sources such as parking lot activities and mechanical ventilation system equipment. These would be potential point sources of noise that could affect receptors in the proposed project vicinity.

As described in the characteristics of noise section, as noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes sound levels to attenuate or be reduced, resulting in a 6-dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise-sensitive receptor of concern. Additionally, if sensitive receptors are shielded from noise by buildings, sound barriers, or other structures, this would provide additional attenuation. The amount of attenuation provided by shielding is a function of the height of the intervening structure and its ability to block the line of sight between a noise source and receptor. Therefore, the significance of any potential impact would vary with the distance between proposed stationary noise sources and sensitive receptors and the inclusion of any intervening structures or barriers.

### **Parking Lot Activities**

Proposed medium- and high-density residential land uses would require parking areas for staff, visitors, and persons residing within the plan area. Parking lot activities include vehicles cruising at slow speeds, doors shutting, or cars starting, would generate noise levels of approximately 60 dBA to 70 dBA  $L_{max}$  at 50 feet. A conversation between two persons at a distance of 3 to 5 feet apart would generate a noise level of 60 dBA  $L_{eq}$  at 5 feet, or approximately 40 dBA  $L_{eq}$  as measured at 50 feet.

At the time that this analysis was prepared, the location of the proposed parking areas was not identified on the area plan. The closest noise-sensitive receptors to potential areas where parking lots could be developed are single-family residences located within 50-feet of the plan area's southern boundary. At a distance of 100 feet, parking lot activity intermittent noise levels would attenuate to below the City's nighttime noise performance standards of 45 dBA  $L_{eq}$  or 64 dBA  $L_{max}$ . Therefore, proposed parking areas should be located a minimum of 100 feet from existing residential land uses or should provide shielding to block the line of sight to nearby noise sensitive land uses to meet the City's nighttime noise performance standards. Therefore, with implementation of MM NOI-2b parking lot activity associated with the Zacharias Master Plan development would not generate a substantial temporary or permanent increase in excess of the City's nighttime noise performance standards as measured at the nearest sensitive receptors, and the impact would be reduced to less than significant.

### **Commercial/Light Industrial Mechanical Ventilation Equipment**

At the time of preparation of this analysis, details were not available pertaining to proposed mechanical ventilation systems for the proposed project; therefore, a reference noise level for

typical mechanical ventilation systems was used. Noise levels from typical residential mechanical ventilation equipment are anticipated to range up to approximately 70 dBA  $L_{eq}$  at a distance of 3 feet from the operating unit.

#### *Zacharias Master Plan Area*

At the time that this analysis was prepared, the location of potential mechanical ventilation systems was not identified on the area plan. The closest noise-sensitive receptors to potential areas where new mechanical equipment could be located are single-family residences located within 50-feet of the plan area's southern boundary. At a distance of 55 feet, typical residential mechanical ventilation system operation noise levels would attenuate to below the City's nighttime noise performance standards of 45 dBA  $L_{eq}$  or 64 dBA  $L_{max}$ . Therefore, proposed mechanical ventilation systems should be located a minimum of 55 feet from existing sensitive receptors or should provide shielding to block the line of sight to nearby noise sensitive land uses to meet the City's nighttime noise performance standards. Therefore, with implementation of MM NOI-2c mechanical ventilation equipment operations associated with the Zacharias Master Plan development would not generate a substantial temporary or permanent increase in excess of the City's noise standards as measured at the nearest sensitive receptors, and the impact would be reduced to less than significant

#### *Baldwin Master Plan Area*

At the time that this analysis was prepared, the location of potential mechanical ventilation systems was not identified on the area plan. The closest existing noise-sensitive receptors are single-family residences, located northeast approximately 300 feet from the Baldwin Master Plan nearest potential areas where new mechanical equipment could be located. At this distance, residential mechanical ventilation system noise levels would attenuate to below 30 dBA  $L_{eq}$  at the property line of this nearest sensitive receptor. As a result, noise levels from residential mechanical ventilation system operations would not exceed the City's nighttime noise performance thresholds of 45  $L_{eq}$  or 65 dBA  $L_{max}$  at the property line of the nearest existing noise-sensitive land use. Therefore, residential mechanical ventilation system operations associate with the Baldwin Master Plan development would not generate a substantial temporary or permanent increase in excess of the City's nighttime noise performance standards as measured at the nearest sensitive receptors, and the impact would be reduced to less than significant without mitigation.

#### **Level of Significance Before Mitigation**

Potentially significant impact.

#### **Mitigation Measures**

**MM NOI-2a** To reduce potential construction noise impacts, the following multi-part mitigation measure shall be implemented for all developments included in the proposed project:

- The construction contractor shall ensure that all internal combustion engine-driven equipment is equipped with mufflers that are in good condition and appropriate for the equipment.

- The construction contractor shall locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area. In addition, the project contractor shall place such stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
- The construction contractor shall prohibit unnecessary idling of internal combustion engines.
- The construction contractor shall, to the maximum extent practical, locate on-site equipment staging areas so as to maximize the distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
- The construction contractor shall limit noise producing construction activity located within five hundred feet of a residential zone, including deliveries and equipment idling activities, to the daytime hours of 7:00 a.m. to 10:00 p.m., unless beforehand a special permit authorizing exception to these hours has been obtained from the officer or body of the city having the function to issue permits of this kind.

**MM NOI-2b** Proposed parking areas within the Zacharias Master Plan area shall be located a minimum of 100 feet from existing residential land uses or shall provide shielding (e.g., sound barrier) to block the line of sight to nearby noise sensitive land uses to meet the City’s nighttime noise performance standards of 45 dBA  $L_{eq}$  or 64 dBA  $L_{max}$ . If shielding is needed, shielding shall have a minimum height sufficient to completely block line-of-sight between the on-site noise source and the nearest residential dwelling to meet the City’s noise standards.

**MM NOI-2c** Proposed mechanical ventilation systems within the Zacharias Master Plan area shall be located a minimum of 55 feet from existing sensitive receptors or should provide shielding to block the line of sight to nearby noise sensitive land uses to meet the City’s noise performance standards of 45 dBA  $L_{eq}$  or 64 dBA  $L_{max}$ . Shielding shall have a minimum height sufficient to completely block line-of-sight between the on-site noise source and the nearest residential dwelling to meet the City’s noise standards. Based on the size and placement of the HVAC units (i.e., ground level or roof top), barrier heights may range between three to six feet.

### ***Level of Significance After Mitigation***

Less than significant impact.

### **Groundborne Vibration/Noise Levels**

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**Impact NOI-3:**        **The project would not result in generation of excessive groundborne vibration or groundborne noise levels.**

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### ***Impact Analysis***

This impact assesses potential groundborne vibration.

### **Baldwin and Zacharias Master Plan**

This section analyzes both construction and operational groundborne vibration impacts. The City of Patterson has not established a standard for excessive groundborne vibration levels resulting from construction activities. Therefore, for purposes of this analysis, the FTA vibration impact criteria are utilized. The FTA has established industry accepted standards for vibration impact assessment in its Transit Noise and Vibration Impact Assessment Manual dated September 2018. These guidelines are summarized in Table 3.11-4.

#### *Construction*

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of a construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels, to slight damage at the highest levels.

Of the variety of equipment used during construction, the small vibratory rollers that would be used in the site preparation phase of construction would produce the greatest groundborne vibration levels. Small vibratory rollers produce groundborne vibration levels ranging up to 0.101 inch per second (in/sec) PPV at 25 feet from the operating equipment.

The closest off-site structures to development that could occur in the Zacharias Master Plan area are single-family residences located along the plan area's southern boundary. Based on the proposed land use development plan, the façade of the nearest structure could be located as close as 50 feet from the construction footprint where heavy equipment would operate within the Master Plan area. At this distance, operation of small vibratory rollers could result in groundborne vibration levels of up to 0.036 PPV at this nearest receptor. This is below the industry standard vibration damage criteria of 0.2 PPV for the most sensitive type of structure: buildings extremely susceptible to vibration damage. Therefore, groundborne vibration levels associated with construction activities at the proposed project site would have a less than significant impact on off-site receptors in the proposed project vicinity.

#### *Operation*

The Baldwin Master Plan is residential only and, thus, would not have the potential to introduce new substantial sources of vibration.

The Zacharias Master Plan includes light industrial uses that would be served by trucks. The light industrial uses would be served by Rogers Road, which is currently used by heavy trucks serving Vista Del Lago, the Keystone Pacific Business Park, and the Arambel Business Park. Despite the significant truck volumes on Rogers Road, nearby buildings do not exhibit vibration damage, indicating that truck vibration is *de minimis*. As such, it would be expected that the Zacharias Master Plan light industrial uses would not result in substantial sources of vibration.

Additionally, the only existing significant permanent sources of groundborne vibration in the vicinity of the area to which the proposed Master Plan area would be exposed is the railroad located adjacent to State Route 33. However, project development would occur beyond 100 feet from the

tracks, which is beyond the typical screening distance for vibration impacts according to the FTA's standards. Therefore, project operational groundborne vibration level impacts would be considered less than significant.

***Level of Significance Before Mitigation***

Less than significant impact.

***Mitigation Measures***

None.

***Level of Significance After Mitigation***

Less than significant impact.

## 3.12 - Population and Housing

### 3.12.1 - Introduction

This section describes population and housing and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information provided by California Department of Finance, California Employment Development Department, and the City of Patterson General Plan.

### 3.12.2 - Existing Conditions

#### Population and Housing Characteristics

The California Department of Finance estimated Patterson’s population to be 23,764 as of 2019. Table 3.12-1 summarizes existing population and housing characteristics.

**Table 3.12-1: Existing Population and Housing Characteristics (2019)**

Population	Dwelling Units			Persons Per Household
	Total	Occupied	Vacant	
23,764	6,619	6,054	565	3.93

Source: California Department of Finance, 2020.

#### Historical Population Growth

The population of Patterson has grown significantly in the 49 years between 1970 and 2019. The City experienced most of the population growth between 1985 and 1990 and 2000 and 2010. The City’s historic population growth is summarized in Table 3.12-2.

**Table 3.12-2: Historical Population Growth**

Year	Population	Net Change From Previous
1970	3,147	–
1975	4,040	893
1980	3,908	(132)
1985	4,690	782
1990	8,626	3,936
1995	9,734	1,108
2000	11,606	1,872
2005	15,677	4,071
2010	20,413	4,736
2015	21,683	1,270
2019	23,764	2,081

Source: California Department of Finance, 2020.

**Projected Population Growth**

Population growth is projected to continue for the near future, primarily driven by continued demand for relatively affordable housing and quality of life in Patterson. The City of Patterson General Plan projects a buildout population of 66,673 persons, which is expected to occur sometime after 2030.

**Employment**

The California Employment Development Department estimated the Patterson work force to be 10,100 and the Stanislaus County workforce to be 243,700 as of February 2020. Employment characteristics for both Patterson and Stanislaus County are summarized in Table 3.12-3.

**Table 3.12-3: Employment Summary**

Jurisdiction	Labor Force	Employed Persons	Unemployed Persons	Unemployment Rate
Patterson	10,100	9,500	600	6.1%
Stanislaus County	243,700	227,700	16,000	6.6%

Source: California Employment Development Department, 2020.

**Projected Employment Growth**

The City of Patterson General Plan projects a buildout employment figure of 32,196, which is expected to occur sometime after 2030.

**3.12.3 - Regulatory Setting**

**State**

**California Housing Element Law**

State law requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. At the state level, the Department of Housing and Community Development (HCD) estimates the relative share of California’s projected population growth that would occur in each county in the State, based on DOF population projections and historic growth trends. Where there is a regional council of governments, such as StanCog, HCD provides the regional housing need to the council. The council then assigns a share of the regional housing need to each of its cities and counties. The process of assigning shares provides cities and counties the opportunity to comment on the proposed allocations. HCD oversees the process to ensure that the council of governments distributes its share of the State’s projected housing need.

Each city and county must update its general plan housing element on a regular basis (approximately every 5 years). Among other things, the housing element must incorporate policies and identify potential sites that would accommodate a city’s share of the regional housing need. Before adopting an update to its housing element, a city or county must submit the draft to HCD for review. HCD will

advise the local jurisdiction whether its housing element complies with the provisions of California Housing Element Law.

The councils of governments are required to assign regional housing shares to the cities and counties within their region on a similar 5-year schedule. At the beginning of each cycle, HCD provides population projections to the councils of governments, which then allocate shares to their cities and counties. The shares of the regional need are allocated before the end of the cycle so that the cities and counties can amend their housing elements by the deadline.

## Local

### **City of Patterson**

#### *General Plan*

The General Plan establishes the following goals and policies related to population, housing, and employment that are applicable to the proposed project:

- **Goal ED-2:** To prepare and acquire an educated and skilled workforce to match the needs of the local and regional economies.
- **Goal ED-2:** To promote a diverse and balanced mix of employment and housing opportunities.
- **Policy ED-3.1:** Jobs-to-housing ratio. The City shall maintain an adequate retail, business, and industrial land supply to meet a jobs-to-housing ratio of at least 1.0.
- **Goal H-1:** It is the Goal of the City of Patterson to assist in increasing the availability of permanent housing for all community residents.
- **Policy H-1-6-1:** Continue to cooperate with large employers, and major commercial and industrial developers to identify and implement programs to balance employment growth, as outlined in the Land Use Goals of the 2004 Update of the Patterson General Plan, with the ability to provide housing opportunities affordable to the incomes of the newly created job opportunities and consider the effects of new employment, particularly in relation to housing demands, when new commercial or industrial development is proposed.
- **Goal LU-1.6:** Small town character. The City shall seek to preserve Patterson's traditional small-town qualities and agricultural heritage, while increasing its residential and employment base.
- **Goal LU-1.9:** Managing the relationship between jobs and housing. The City shall monitor residential and non-residential development and encourage adjustments as necessary in land use designations and the rate of project approvals to promote a reasonable citywide balance between new employment-generating development and housing development and to minimize traffic impacts.

### **3.12.4 - Methodology**

Impacts on population, housing, and employment were assessed by reviewing existing and anticipated population, housing, and employment projections provided the California Department of Finance, the California Employment Development Department and the City of Patterson General Plan.

### 3.12.5 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to population and housing are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

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

### 3.12.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

#### Growth Inducement

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**Impact POP-1:**      **Buildout of the Master Plans would not induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).**

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#### *Impact Analysis*

There are two types of direct growth inducement: construction of new dwelling units and the creation of new job opportunities. Indirect growth inducement occurs when “barriers to growth” are removed, such as the extension of essential utilities to unserved areas.

At buildout, the two Master Plans would support an estimated 19,988 new residents and 8,670 employees on existing agricultural land that would be annexed into the City of Patterson. Additionally, the Master Plans contemplate a network of urban infrastructure including roads and utilities. Each Master Plan is discussed separately.

#### ***Baldwin Master Plan***

The Baldwin Master Plan would support a population of 1,199 at buildout. Because of its small size and single use, the Baldwin Master Plan would buildout over a period of 5 years. When compared to the historical population growth totals shown in Table 3.12-2, the Baldwin Master Plan would be in line with past growth periods.

The City of Patterson General Plan contemplates a buildout population of 66,673 persons. Given that the City’s existing population (23,764) is roughly half of the projected buildout population, the Baldwin Master Plan would be within the General Plan’s growth projections.

The Baldwin Master Plan would include the extension of roads, storm drainage, water, sewer, electricity, and natural gas services to the Master Plan area. These connections would occur at Baldwin Road or Sperry Avenue. No off-site infrastructure connections would occur through areas

unserved by urban infrastructure. As such, the proposed Master Plan would not result in growth inducement.

### ***Zacharias Master Plan***

The Zacharias Master Plan would support a population of 18,789 and 8,670 employees at buildout. Because of its size and scale, the Zacharias Master Plan would buildout over a period of 20 years. When broken down into 5-year increments, this averages to 4,695 additional persons and 2,168 additional employees every 5 years. When compared to the historical population growth totals shown in Table 3.12-2, the Zacharias Master Plan would be in line with past growth periods.

The City of Patterson General Plan contemplates a buildout population of 66,673 persons and 32,196 employees. Given that the City's existing population (23,764) is roughly half of the projected buildout population and existing employment (9,500) is roughly a third of the projected buildout employment, the Zacharias Master Plan would be within the General Plan's growth projections.

The Zacharias Master Plan would include the extension of roads, storm drainage, water, sewer, electricity, and natural gas services to the Master Plan area. These connections would occur at Keystone Pacific Parkway, Baldwin Road, and Ward Avenue. No off-site infrastructure connections would occur through areas unserved by urban infrastructure. As such, the proposed Master Plan would not result in growth inducement.

### ***Combined Master Plans***

The Baldwin Master Plan and Zacharias Master Plan would add a combined 19,988 persons and 8,670 employees at buildout. The City of Patterson General Plan contemplates a buildout population of 66,673 persons and 32,196 employees. Given that the City's existing population (23,764) is roughly half of the projected buildout population and existing employment (9,500) is roughly a third of the projected buildout employment, both Master Plans would be within the General Plan's growth projections. As such, the proposed Master Plan would not result in growth inducement.

### ***Level of Significance Before Mitigation***

Less than significant impact.

### ***Mitigation Measures***

No mitigation is necessary.

### ***Level of Significance After Mitigation***

Less than significant impact.

### **Housing Displacement**

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**Impact POP-2:**      **The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.**

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### ***Impact Analysis***

This impact assesses whether the proposed Master Plans would displace housing or persons.

**Baldwin Master Plan**

Buildout of the Master Plan would be limited to the Master Plan boundaries. There is an existing cluster of structures that include at least one residence. The removal of these structures would not represent the loss of a substantial amount of housing given that 305 new dwelling units would be developed in their place. Impacts would be less than significant.

**Zacharias Master Plan**

The 1,160 acres of the Master Plan area that excludes the Ranchette Triangle contains agricultural land. There are two clusters of residential and agricultural structures within this area that would ultimately be removed as the Master Plan builds out. The removal of these structures would not represent the loss of a substantial amount of housing given that 4,350 new dwelling units would be developed in their place.

The 137-acre Ranchette Triangle contains more than 30 separate parcels. The Master Plan allows property owners to continue existing land use activities after annexation. Thus, any change in land use activities (including development to a higher and better use) would be the prerogative of the property owner. Regardless, there would be a net increase in the number of dwelling units, which would offset the loss of the existing dwelling units.

Impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

### 3.13 - Public Services and Recreation

#### 3.13.1 - Introduction

This section describes the existing public services and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based, in part, on information provided by the Patterson Fire Department, Patterson Police Services, the Patterson Unified School District, and the Patterson Parks and Recreation Department.

#### 3.13.2 - Environmental Setting

##### Fire Protection

##### ***Patterson Fire Department***

The Patterson Fire Department (Fire Department) provides fire protection and emergency medical services to the City of Patterson. The Fire Department operates two stations, which are summarized in Table 3.13-1.

**Table 3.13-1: Patterson Fire Department**

Station No.	Address	Distance from Rogers Road/Zacharias Road	Distance from South End of Baldwin Road	Apparatus	Staffing
1 (Headquarters)	344 West Las Palmas Avenue	3.7 miles	2.2 miles	Type-1 Fire Engine (2); Type-2 Rescue Apparatus (1); Chief Officer (Command) Vehicle (3)	Fire Chief (1); Division Chief (2) Line Personnel (2 per 48-hour shift)
2	1950 Keystone Pacific Parkway	1.9 miles	1.6 miles	Type-1 Fire Engine* (1-Initial Attack, 1-Reserve Engine) Type-1 Ariel 105-foot Ladder Truck* (1); IRB Rescue Boat (1)	Line Personnel (2 per 48-hour shift)

**Notes:**

Station No. 1 shared with West Stanislaus County Fire Protection District.

\* The Initial Attack Engine and Type-1 Ladder Truck are cross-staffed by on-duty personnel at Fire Station No. 2.

Source: City of Patterson, 2019.

The Del Puerto Health Care District also provides ambulance services to Patterson and surrounding communities. The Health Care District operates the Health Center at 1108 Ward Avenue in Patterson.

##### *Staffing*

The Fire Department’s sworn personnel consist of the Fire Chief, two Division Chiefs, four captains, two captain/medics, four engineers, two engineer/medics, and three firefighters/medics. The Fire Department staffs two stations 24 hours a day, 7 days a week with career personnel.

*Calls for Service*

The Fire Department responds to more than 1,600 incidents annually, with roughly 80 percent being medical in nature.

*Response Times*

The Fire Department indicated that the average response time in 2008 was 5 minutes, 31 seconds. According to the Patterson General Plan, the goal for average response time for Priority 1 (emergency) calls is 5 minutes for 95 percent of the calls.

*Aid Agreements*

The Fire Department has a mutual aid agreement with the West Stanislaus Fire District, neighboring fire agencies located within Stanislaus County (including Woodland Avenue Fire District, Salida Fire District, Westport Fire District, and Mountain View Fire District), and CalFire.

**West Stanislaus Fire Protection District**

The West Stanislaus County Fire Protection District (Fire Protection District) provides fire protection and emergency medical services to an approximately 625-square-mile service area that consists of the unincorporated areas that are located west of the San Joaquin River. The Fire Protection District operates six stations, including two shared stations with the Patterson Fire Department and Newman Fire Department. Table 3.13-2 summarizes the Fire Protection District’s fire stations.

**Table 3.13-2: West Stanislaus County Fire Protection District Station Summary**

Station	Apparatus
Patterson* (Headquarters)	Type 1 Engine (2) Type 3 Engine (1) Water Tender (1) Rescue Vehicle (1) Truck (1) Command Vehicle (4)
Newman**	Type 1 Engine (1) Type 3 Engine (1) Rescue Vehicle (1) Crows Landing Type 1 Engine (2) Water Tender (1)
Westley	Type 1 Engine (1) Water Tender (1) Rescue Vehicle (1)
El Solyo (Vernalis)	Type 2 Engine (2) Water Tender (1)
Diablo Grande	Type 1 Engine (1) Type 3 Engine (1)
Notes: * Shared with the Patterson Fire Department ** Shared with the Newman Fire Department Source: West Stanislaus Fire Protection District, 2019.	

*Staffing*

The Fire Protection District is staffed by three career Chief Officers, three career administrative staff persons, 10 volunteer chief officers, 10 volunteer officers, and 100 volunteer firefighters.

**Police Protection**

Police services in Patterson are provided on a contractual basis by the Stanislaus County Sheriff’s Department. Within Patterson, the Police Services is headquartered at 33 South Del Puerto Avenue in downtown Patterson. All law enforcement operations and support services for Patterson originate from the Police Services headquarters.

*Staffing*

The Police Services currently employs 21 sworn staff and four non-sworn civilian staff.

*Calls for Service*

In 2010, Patterson Police Services received 17,663 calls for services.

*Response Times*

According to the Patterson General Plan, the goal for average response time for Priority 1 (emergency) calls is 3 minutes. The Police Services has indicated that the response time for Priority 1 calls for service are generally within 3 minutes and, therefore, meets the General Plan goal.

**Schools**

Patterson Unified School District (PUSD) provides K-12 educational services to the City of Patterson and surrounding unincorporated areas of Stanislaus County. PUSD has a K-12 enrollment of more than 6,000 students.

**School Facilities**

PUSD operates nine schools that are summarized in Table 3.13-3.

**Table 3.13-3: School Summary**

School	Grades	Enrollment
Apricot Valley Elementary	K-5	762
Creekside Middle	6-8	1,146
Grayson Elementary	K-5	266
Del Puerto High	11-12	98
Las Palmas Elementary	K-5	598
Patterson High	9-12	1,738
Northmead Elementary	K-5	629
Open Valley Independent Study	6-12	53
Walnut Grove	K-8	765
Source: Patterson Unified School District, 2019.		

### *Planned Facilities*

PUSD acquired land at the northeastern quadrant of Baldwin Road/Zacharias Road for a future high school.

## **Parks and Recreation**

The City of Patterson Recreation and Community Services Department maintains and operates parks and recreational facilities within the Patterson city limits. The City maintains 34 parks ranging in size from less than 1 acre to 12 acres. In total, the City has 98 acres of parks and recreation acreage. Facilities include the T.W. Patterson Sports Complex, the Patterson Aquatics Center and Skatepark, Walnut Grove Gym, the Hammon Senior Center, as well as a number of school and neighborhood parks.

### **3.13.3 - Regulatory Framework**

#### **State**

##### ***California Building Standards Code***

Title 24 of the California Code of Regulations, also known as the California Building Standards Code, is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national and international model codes.
- Building standards that have been adopted and adapted from the national and international model code standards to meet California conditions.
- Building standards, authorized by the California legislature, which constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

The California Fire Code is a component of the California Building Standards Code and contains fire-safety-related building standards.

#### **Local**

##### ***City of Patterson***

###### *General Plan*

The General Plan establishes the following goals and policies associated with public services and recreation that are applicable to the proposed project:

- **Goal PS-5:** To ensure that an adequate level of police service is maintained as new development occurs.
- **Policy PS-5.1:** Police response time. The City shall, through adequate staffing and patrol arrangements, and through the establishment of police stations/patrol offices, endeavor to maintain the minimum feasible response times for police calls for all parts of the City. The goal for average response time for Priority 1 (emergency) calls shall be three minutes.

- **Policy PS-5.2:** Response time monitoring. The Police Services Department shall continually monitor response times and report annually on the results of the monitoring.
- **Policy PS-5.3:** Ratio of police officers to population. The City shall endeavor to achieve and maintain a ratio of 1.5 police officers per 1,000 population.
- **Policy PS-5.4:** Agency cooperation. The City shall continue to work with other agencies to facilitate the most cost-effective provision of law enforcement and social services for Patterson residents.
- **Goal PS-6:** To ensure that an adequate level of fire service is maintained as new development occurs.
- **Policy PS-6.1:** Fire response time. The City shall endeavor to achieve and maintain an overall fire insurance (ISO) rating of 5 or better. The goal for average response time for Priority 1 (emergency) calls shall be five minutes for 95 percent of the calls.
- **Policy PS-6.2:** Location of stations. Fire stations shall be strategically located to ensure optimal response time. The existence of physical barriers such as railroad tracks shall be an important siting consideration.
- **Policy PS-6.3:** Fire Code requirements. The City shall continue to apply the California Fire Code requirements for built-in fire suppression equipment in all new development.
- **Policy PS-6.4:** Ratio of fire fighters to population. The City shall endeavor to achieve and maintain a ratio of 1.0 fire fighters per 1,000 population.
- **Policy PS-9.3:** Underground utilities. The City shall, where suitable, require all new electrical and communication facilities to be installed underground or, in the case of transformers, pad-mounted. The City shall actively promote the undergrounding of existing overhead facilities.
- **Goal PR-1:** To establish and maintain a public park system and recreation facilities suited to the needs of Patterson residents and visitors.
- **Policy PR-1.1:** Parks and Recreation Facilities Master Plan. The city shall prepare and adopt a Parks and Recreation Facilities Master Plan which includes the following components:
  - Locational standards
  - Preferred sites
  - Improvement and equipment standards
  - Developmental priorities
  - Financing mechanisms
  - Development of community activity centers
  - Sports facilities
  - Joint use facilities
- **Policy PR-1.2:** Parks standard. The City shall establish a minimum of five acres of developed parkland (combined pocket, neighborhood, and community) per 1,000 residents.
- **Policy PR-1.3:** Requirements for development. New development shall be required to assist in meeting the City's standard of five acres per 1,000 residents. To this end, the City shall require

all new development to dedicate land, dedicate improvements, pay in-lieu fees, or a combination of these determined acceptable by the City, to the maximum extent authorized by law.

- **Policy PR-1.5:** Neighborhood parks. Neighborhood parks shall be integrated into, and become focal points of, new residential neighborhoods. Pedestrian accessibility to these parks shall be emphasized.
- **Policy PR-1.7:** Joint-use. The City shall pursue and maintain agreements for joint-use of school facilities as a high priority for the development of new park and recreational facilities, especially for after-school activities.
- **Policy PR-1.8:** Safety. Parks shall be located, oriented, and designed in such a way as to facilitate security, policing, and maintenance.
- **Policy PR-1.9:** Nuisance. High-activity-level parks and parks intended for night use shall be designed to buffer existing and planned surrounding residential uses from excessive noise, light, and other potential nuisances.
- **Policy PR-1.11:** Design for droughts. The City shall emphasize the use of drought-tolerant, drought-resistant and low use irrigation landscaping in the development of City parks.
- **Policy PR-1.13:** Open spaces as buffers. The City shall encourage the use of open space and recreational uses as buffers between incompatible land uses.
- **Policy PR-1.14:** Pedestrian/bicycle network. The City shall pursue the development of a citywide network of pedestrian and bicycle pathways to integrate with existing and future regional, community, neighborhood, and, to the extent possible, pocket parks. (See the Circulation Element for more policies).

#### *Municipal Code*

The Municipal Code includes by adoption the California Fire Code as published by the International Code Council and referred to as the Fire Code of the City of Patterson. The Fire Code regulates and governs the safeguarding of life and property from fire and explosion hazards.

### **3.13.4 - Methodology**

FCS staff consulted with public services and utility providers regarding their ability to serve the proposed project. Letters were sent to the Patterson Police Department, the Patterson Fire Department, PUSD, and Patterson Parks and Recreation Department requesting information about their ability to serve the proposed project. The agency responses are provided in Appendix G.

### **3.13.5 - Thresholds of Significance**

According to Appendix G, Environmental Checklist, of the CEQA Guidelines, public services and recreation impacts resulting from the implementation of the proposed project would be considered significant if the project would:

. . . result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental

facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- a) Fire protection?
- b) Police protection?
- c) Schools?
- d) Parks?
- e) Other public facilities?
- f) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- g) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

### 3.13.6 - Project Impacts and Mitigation Measures

#### Fire Protection

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**Impact PSR-1:** Buildout of the Master Plans may result in a need for new or expanded fire protection facilities.

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#### *Impact Analysis*

This impact assesses whether the proposed project would result in a need for new or expanded fire protection and emergency medical service facilities.

#### *Baldwin Master Plan*

Fire Station No. 2 is located 1.7 miles from the Baldwin Master Plan area. Using an average travel speed of 35 miles per hour, a fire engine traveling from Station No. 2 to the Master Plan area would take 2 minutes, 55 seconds. This is considered an acceptable response time and, thus, the Master Plan would not require the construction of new fire station in order to achieve maintain adequate response times.

The City of Patterson General Plan Policy PS-6.4 sets forth a staffing ratio of 1.0 firefighter per 1,000 residents. Buildout of the Baldwin Master Plan would add 1,199 residents to the City of Patterson and, thus, create a need for 1-2 additional firefighters. Staffing is a policy decision at the discretion of the Patterson City Council and outside the scope of the environmental reviews process because it does not have physical impacts on the environment.

Nonetheless, buildout of the Master Plan would create a citywide need for at least one additional fire station or expansion of one of the two existing fire stations. Mitigation Measure (MM) PSR-1 requires the Master Plan applicant to pay development fees in accordance with the latest adopted

fee schedule at the time building permits are sought. As such, impacts associated with fire protection are less than significant.

### **Zacharias Master Plan**

Fire Station No. 2 is located 2.5 miles from the intersection of Rogers Road/Zacharias Road, the furthest portion of the Zacharias Master Plan area from the fire station. Using an average travel speed of 35 miles per hour, a fire engine traveling from Station No. 2 to the Master Plan area would take 4 minutes, 17 seconds. This is considered an acceptable response time and, thus, the Master Plan would not require the construction of new fire station in order to achieve maintain adequate response times.

The City of Patterson General Plan Policy PS-6.4 sets forth a staffing ratio of 1.0 firefighter per 1,000 residents. Buildout of the Zacharias Master Plan would add 18,789 residents to the City of Patterson and, thus, create a need for 18-19 additional firefighters. Staffing is a policy decision at the discretion of the Patterson City Council and outside the scope of the environmental reviews process because it does not have physical impacts on the environment.

Nonetheless, buildout of the Master Plan would create a citywide need for at least one additional fire station or expansion of one of the two existing fire stations. MM PSR-1 requires the Master Plan applicant to pay public safety development fees in accordance with the latest adopted fee schedule at the time building permits are sought.

As such, impacts associated with fire protection are less than significant.

### **Level of Significance Before Mitigation**

Potentially significant impact.

### **Mitigation Measures**

**MM PSR-1** Prior to issuance of building permits, the applicant shall pay all public safety development fees in accordance with the City of Patterson’s latest adopted fee schedule.

### **Level of Significance After Mitigation**

Less than significant impact.

### **Police Protection**

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**Impact PSR-2:** Buildout of the Master Plans may result in a need for new or expanded police protection facilities..

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### **Impact Analysis**

This impact assesses whether the proposed project would require a need for new or expanded police protection facilities.

### ***Baldwin Master Plan***

Police headquarters are located 2.5 miles from the Baldwin Master Plan area. The Patterson Police regularly patrol all parts of the city limits and, thus, police units would be expected to be able to respond to calls within the Baldwin Master Plan area within acceptable response times. As such, the Master Plan would not require the construction of new police facilities in order to achieve maintain adequate response times.

The City of Patterson General Plan Policy PS-5.3 sets forth a staffing ratio of 1.5 police officers per 1,000 residents. Buildout of the Baldwin Master Plan would add 1,199 residents to the City of Patterson and, thus, create a need for 1-2 additional police officers. Staffing is a policy decision at the discretion of the Patterson City Council and outside the scope of the environmental review process because it does not have physical impacts on the environment.

Nonetheless, buildout of the Master Plan would create a citywide need for at least one additional police station or expansion of the existing police station. MM PSR-1 requires the Master Plan applicant to pay public safety development fees in accordance with the latest adopted fee schedule at the time building permits are sought. As such, impacts associated with police protection are less than significant.

### ***Zacharias Master Plan***

Police headquarters are located 3.7 miles from the intersection of Rogers Road/Zacharias Road, the furthest portion of the Zacharias Master Plan area from headquarters. The Patterson Police regularly patrol all parts of the city limits and, thus, police units would be expected to be able to respond to calls within the Zacharias Master Plan area within acceptable response times. As such, the Master Plan would not require the construction of new police facilities in order to achieve maintain adequate response times.

The City of Patterson General Plan Policy PS-5.3 sets forth a staffing ratio of 1.5 police officers per 1,000 residents. Buildout of the Zacharias Master Plan would add 18,789 residents to the City of Patterson and, thus, create a need for 28-29 additional firefighters. Staffing is a policy decision at the discretion of the Patterson City Council and outside the scope of the environmental review process because it does not have physical impacts on the environment.

Nonetheless, buildout of the Master Plan would create a citywide need for at least one additional police station or expansion of the existing police station. MM PSR-1 requires the Master Plan applicant to pay public safety development fees in accordance with the latest adopted fee schedule at the time building permits are sought.

As such, impacts associated with police protection are less than significant.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### ***Mitigation Measures***

Implement MM PSR-1.

### **Level of Significance After Mitigation**

Less than significant impact.

### **Schools**

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**Impact PSR-3: Buildout of the Master Plans would not result in a need for new or expanded schools beyond those contemplated by the project..**

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#### **Impact Analysis**

This impact assesses whether the proposed project would require a need for new or expanded school facilities.

#### **Baldwin Master Plan**

Buildout of the Baldwin Master Plan would add 305 dwelling units and 1,199 residents to the City of Patterson. Using a student generation rate of 0.624 student/dwelling unit, the Baldwin Master Plan would add 191 students to PUSD. This was calculating using a conservative student generation rate of 0.624 student per dwelling unit as set forth in the 2018 School Facility Needs Analysis for the Patterson Joint Unified School District.

The Baldwin Master Plan applicant would be required to pay development fees to the School District to fund capital improvements to school facilities. Pursuant to Government Code Section 65995, payment of development fees is “full and complete mitigation” for impacts on schools. Impacts would be less than significant.

#### **Zacharias Master Plan**

Buildout of the Zacharias Master Plan would add 4,781 dwelling units and 18,789 residents to the City of Patterson. Using a student generation rate of 0.624 student/dwelling unit, the Zacharias Master Plan would add 2,984 students to PUSD.

The Zacharias Master Plan contemplates an approximately 14-acre elementary school site east of Baldwin Road and a 16-acre middle school site west of Baldwin Road. Those schools are part of the Master Plan and are evaluated in this EIR. Following adoption of the Zacharias Master Plan entitlements, PUSD will have a defined period of time to exercise its option to acquire and develop the schools. The Zacharias Master Plan applicants that would dedicate school sites would be credited the value of the land against its school development fee obligation.

For the Zacharias Master Plan applicants that do not dedicate school sites, they would be required to pay development fees to the School District to fund capital improvements to school facilities. Pursuant to Government Code Section 65995, payment of development fees is “full and complete mitigation” for impacts on schools. Impacts would be less than significant.

As such, impacts associated with fire protection are less than significant.

### **Level of Significance Before Mitigation**

Less than significant impact.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Less than significant impact.

### **Parks and Recreation**

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**Impact PSR-4: Buildout of the Master Plans would not result in a need for new or expanded park and recreational facilities beyond those contemplated by the project..**

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### **Impact Analysis**

This impact assesses whether the proposed project would require a need for new or expanded park and recreation facilities.

#### **Baldwin Master Plan**

Buildout of the Baldwin Master Plan would add 1,199 residents to the City of Patterson. The City of Patterson General Plan Goal PR-1, and Policies PR-1.1, 1.2, 1.3, 1.5, and 1.7 require the City to maintain at least 5 acres of parkland, open space, or recreational areas per 1,000 residents. Thus, the Zacharias Master Plan would be required to provide 6 acres of parkland, open space, or recreational areas.

The Zacharias Master Plan proposes 2.0 acres of parks, 2.0 acres of dual use park/basin, and 1.0 of acre buffer/trails. Furthermore, the City may require the applicant to pay in-lieu fees to fund the development of park facilities elsewhere.

#### **Zacharias Master Plan**

Buildout of the Zacharias Master Plan would add 18,789 residents to the City of Patterson. The City of Patterson General Plan Goal PR-1, and Policies PR-1.1, 1.2, 1.3, 1.5, and 1.7 require the City to maintain at least 5 acres of parkland, open space, or recreational areas per 1,000 residents. Thus, the Zacharias Master Plan would be required to provide 94 acres of parkland, open space, or recreational areas.

The Zacharias Master Plan proposes 60.7 acres of parks/trails and 13.4 acres of open space/lake. In addition to these features, the Zacharias Master Plan also proposes to construct a dual use regional athletic facility/flood control basin. These park facilities are part of the Master Plan and are evaluated in this EIR. Furthermore, the City may require the applicants to pay in-lieu fees to fund the development of park facilities elsewhere.

As such, impacts associated with parks are less than significant.

### **Level of Significance Before Mitigation**

Less than significant impact.

### **Mitigation Measures**

None required.

**Level of Significance After Mitigation**

Less than significant impact.

**Other Public Facilities**

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**Impact PSR-5:** Buildout of the Master Plans would not result in a need for new or expanded public facilities such as libraries..

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**Impact Analysis**

This impact assesses whether the proposed project would require a need for new or expanded library facilities.

**Baldwin Master Plan**

Buildout of the Baldwin Master Plan would add 1,199 residents to the City of Patterson and increase the use of libraries. The City will require the applicant to pay in-lieu fees to fund the development of libraries facilities elsewhere. As such, impacts associated with other public facilities are less than significant.

**Zacharias Master Plan**

Buildout of the Zacharias Master Plan would add 18,789 residents to the City of Patterson and increase the use of libraries. The City will require the applicant to pay in-lieu fees to fund the development of libraries facilities elsewhere. As such, impacts associated with other public facilities are less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

None required.

**Level of Significance After Mitigation**

Less than significant impact.

## 3.14 - Transportation

### 3.14.1 - Introduction

This section describes the existing transportation setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on the Traffic Impact Study prepared by Advanced Mobility Group (AMG). The complete study is provided in Appendix H.

### 3.14.2 - Environmental Setting

#### Roadway Network

The following section describes the existing transportation conditions in the vicinity of the study area, including descriptions of the existing street system and intersection operating conditions.

#### *Interstate 5*

Interstate 5 (I-5) is a four-lane freeway near Patterson. Per the 2016 traffic counts obtained from the Caltrans website, I-5 carries between 40,000 to 48,000 vehicles per day (vpd) in the vicinity of Sperry Avenue. For regional travel, residents rely primarily on I-5, a major north-south freeway to the west of the city limits. I-5 connects to I-580, approximately 15 miles to the north of Patterson. I-5 and I-580 provide access to regional employment centers in Pleasanton, San Ramon, and the rest of the San Francisco Bay Area.

The interchange of I-5/Sperry Avenue is configured as a tight diamond (Type L1) with a narrow underpass road and a steep drop in grade next to the northbound on-ramp. All ramps have one lane in each direction.

#### *State Route 33*

State Route 33 (SR-33) is located approximately three miles to the east of I-5. SR-33 provides north-south access to Westley to the north and the City of Newman to the south. Its ADT is approximately 6,000 vpd. It is the main north-south roadway in Patterson.

Sperry Avenue is a two- to four-lane major arterial roadway that serves as the major route of travel between I-5 to the west and the City of Patterson to the east. Sperry Avenue terminates at SR-33, three miles east of I-5. Near the freeway, its ADT ranges between 12,000 to 14,000 vpd. A recent count to the east of Rogers Road showed the ADT to be approximately 15,040 vpd.

#### *Rogers Road*

Rogers Road is a two to three lane north-south collector street located generally to the east of I-5. The road starts from Sperry Avenue to the south and ends at SR-33 to the north. Its ADT is approximately 2,400 vpd.

#### *East Las Palmas Avenue*

East Las Palmas Avenue is a three-lane major east west arterial including a center two-way left-turn lane between SR-33 and Sycamore Avenue, where it narrows to a two-lane road. To the west of SR-

33, four streets form a roundabout at Las Palmas Avenue. Most traffic destined for Modesto currently uses Las Palmas Avenue. Its ADT is approximately 11,800 vpd. The name changes to W. Main Street near the San Joaquin River.

### **Zacharias Road**

Zacharias Road is currently a primarily two-lane rural road that extends from SR-33 in the east to slightly past I-5 freeway underpass. West of Rogers Road it is generally unpaved two-lane farm road. Its ADT is approximately 320 vpd.

### **Baldwin Road**

Baldwin Road is a two-lane north-south collector roadway that connects State Route 33 in the north and a residential neighborhood to the south of Sperry Avenue. This roadway provides access to the industrial and retail establishments in the northwest part of Patterson as well as to residential neighborhoods. Its ADT is approximately 4,910 vpd.

## **Roadway and Intersection Operating Conditions**

### **Traffic Data Collection**

Based on discussions with City staff, the following study intersections as shown in Exhibit 3.14-1 were selected for analysis:

- 1 Sperry Avenue/I-5 SB Off-Ramps
- 2 Sperry Avenue/I-5 NB On-Ramps
- 3 Sperry Avenue/Rogers Road
- 4 Sperry Avenue/Park Center Drive
- 5 Sperry Avenue/Baldwin Road
- 6 Sperry Avenue/American Eagle Drive
- 7 Sperry Avenue/Ward Avenue
- 8 Sperry Avenue/South Del Puerto Avenue
- 9 Sperry Avenue/SR-33
- 10 Walnut Avenue/M Street/SR-33
- 11 SR-33/Las Palmas Avenue
- 12 Olive Avenue/SR-33
- 13 Park Center/Keystone Pacific Parkway
- 14 Rogers Road/Keystone Pacific Parkway
- 15 Rogers Road/Zacharias Road
- 16 Baldwin Road/Zacharias Road
- 17 Zacharias Road/SR-33
- 18 Ward Avenue/SR-33
- 19 SR-33/Eucalyptus
- 20 Baldwin Road/SR-33
- 21 Rogers Road/SR-33
- 22 Sycamore Avenue/Eucalyptus
- 23 Elm Avenue/Eucalyptus Avenue
- 24 Sycamore Avenue/Las Palmas Avenue
- 25 Elm Avenue/Las Palmas Avenue
- 26 Jennings Road/West Main Avenue
- 27 SR-33 / New East-West Connection
- 28 Ward Avenue / New East-West Connection
- 29 SR-33/Grayson Road
- 30 Marshall Road / Ward Avenue
- 31 SR-33 / Marshall Road
- 32 SR-33 /Crows Landing / Fink Road

The AM and PM peak-hour intersection turning movement counts were collected either on May 2018 or in April 2019. Counts for three of the intersections south of Marshall Road were based on factoring of 2014 counts from the Crows Landing Industrial Business Park Transportation Infrastructure Plan. Exhibit 3.14-2 shows the turning movement volumes and lane configuration at each study intersection.

### Level of Service

Level of Service is a qualitative index of the performance of an element of the transportation system. Level of Service (LOS) is a rating scale running from A to F, with A indicating no congestion of any kind, and F indicating intolerable congestion and delays.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. There are several software packages that have been developed to implement HCM. In this study the Synchro software was used to calculate the LOS at the study intersections.

### Signalized Intersections

The relationship between average control delay, driver’s perception of traffic, and LOS for signalized intersections is summarized in Table 3.14-1.

**Table 3.14-1: Signalized Intersection LOS Criteria**

LOS	Driver’s Perception and Traffic Operation Description	Delay in Seconds
A	Little or no delays	< 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: AMG 2020.

### Unsignalized Intersections

The method of unsignalized intersection capacity analysis used in this study is from Chapter 19, “Two-Way Stop-Controlled Intersections” of the Highway Capacity Manual. This method applies to two-way STOP sign or YIELD sign-controlled intersections (or one-way STOP sign or YIELD sign controlled intersections at three-way intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers. Thus, the capacity of the controlled legs of an intersection is based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for two-way STOP controlled intersections is somewhat different from the criterion used for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized

intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The HCM provides procedures for calculating LOS on the minor street approaches and individual movements. It does not specify how a City must utilize that information. Depending on the availability of gaps, the minor approach might be operating at LOS D, E, or F while the overall intersection operates at LOS C or better. A minor approach that operates at LOS D, E, or F does not automatically translate into a need for a traffic signal. A signal warrant would still need to be met. There are many instances where only a few vehicles are experiencing LOS D, E, or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Table 3.14-2 summarizes the relationship between delay and LOS for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left-turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side street stop-controlled intersections.

**Table 3.14-2: Unsignalized Intersection LOS Criteria**

LOS	Driver’s Perception and Traffic Operation Description	Delay in Seconds
A	Operations with very low delay occurring with favorable Progression and/or short cycle length.	< 10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10–20
C	Operations with average delays resulting from fair progression and/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, or high volume-to-capacity (V/C) ratios. Many vehicles stop, and individual cycle failures are noticeable.	> 35–55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55–80
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80

Source: AMG, 2020.

The City of Patterson Guidelines for Traffic Impact Studies generally defines acceptable citywide unsignalized intersection operations as LOS D (35 seconds of delay per vehicle) or better during the morning and evening peak periods.

**Significance Standards**

*City Standards*

The following is the City’s criteria of significance to determine the potential impacts associated with a proposed project or action:

The City’s 2010 General Plan, Policy III.A.2 states that “The City shall endeavor to maintain a Level of Service (LOS) “D”, as defined by the 2000 Highway Capacity Manual (HCM) or subsequent revisions, on all streets and intersections within the City.”

*County and Caltrans Standards*

The minimum acceptable level of service standard for Stanislaus County roadway segments is LOS C. Therefore, this report uses LOS C as the minimum acceptable standard and mitigation measures are recommended where service levels are below LOS C along roadways within Stanislaus County. Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and arterials. Although Caltrans has not designated a LOS standard, Caltrans’ Guide for the Preparation of Traffic Impact Studies (December 2002) indicates attempts to maintain LOS of a State highway facility between the LOS “C/D” threshold. When existing State highway facilities are operating at higher levels of service than noted above, 20-year forecasts or general plan build-out analysis for the facility should be considered to establish equitable project contributions to local development impact fee programs that address cumulative traffic impacts.

**Existing Traffic Conditions**

**Intersections**

To accurately model the traffic condition, AMG created a Synchro traffic analysis model to determine the intersection LOS. The Existing Conditions traffic operations were evaluated based on levels of service criteria using Synchro. The macroscopic simulation model, Synchro, was used to evaluate several measures (such as lane geometries, signal optimization, signal phasing and traffic control) at the study intersections. The results of the LOS analysis for the existing intersections are shown in Table 3.14-3.

**Table 3.14-3: Existing LOS of Study Intersections**

#	Intersection	Existing Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Sperry Avenue/I-5 SB Off-Ramps	One-Way Stop	9.4	A	23.7	C
2	Sperry Avenue/I-5 NB On-Ramps	One-Way Stop	10.5	B	15.2	B
3	Sperry Avenue/Rogers Road	Signal	14.8	B	12.9	B
4	Sperry Avenue/Park Center Drive	Signal	10.1	B	12.2	B
5	Sperry Avenue/Baldwin Road	Signal	17.7	B	17.9	B
6	Sperry Avenue/American Eagle Drive	Signal	18.3	B	13.7	B
7	Sperry Avenue/Ward Avenue	Signal	27.4	C	25.6	C

#	Intersection	Existing Control	AM		PM	
			Delay	LOS	Delay	LOS
8	Sperry Avenue/S Del Puerto Avenue	Signal	8.0	A	7.5	A
9	Sperry Avenue/SR-33	Two-Way Stop	37.8	E	35.6	E
10	Walnut Avenue/M Street/SR-33	Signal	21.9	C	19.2	B
11	SR-33/Las Palmas Avenue	Signal	15.3	B	14.9	B
12	Olive Avenue/SR-33	Two-Way Stop	19.4	C	18.1	C
13	Park Center/Keystone Pacific Parkway	Two-Way Stop	10.2	B	12.7	B
14	Rogers Road/Keystone Pacific Parkway	Two-Way Stop	10.7	B	11.2	B
15	Rogers Road/Zacharias Road	Two-Way Stop	9.6	A	10.9	B
16	Baldwin Road/Zacharias Road	All-Way Stop	8.0	A	7.8	A
17	Zacharias Road/SR-33	Two-Way Stop	10.7	B	13.0	B
18	Ward Avenue/SR-33	One-Way Stop	16.4	C	19.0	C
19	SR-33/Eucalyptus	One-Way Stop	14.4	B	16.3	C
20	Baldwin Road/SR-33	One-Way Stop	17.5	C	18.8	C
21	Rogers Road/SR-33	One-Way Stop	18.3	C	36.5	E
22	Sycamore Avenue/Eucalyptus	Two-Way Stop	10.0	A	10.2	B
23	Elm Avenue/Eucalyptus Avenue	Two-Way Stop	10.0	A	9.7	A
24	Sycamore Avenue/Las Palmas Avenue	Signal	16.2	B	16.4	B
25	Elm Avenue/Las Palmas Avenue	Signal	11.1	B	11.6	B
26	Jennings Road/West Main Avenue	One-Way Stop	29.6	D	27.5	D
29	SR-33/Grayson Road	All-Way Stop	63.8	F	79.8	F
30	Marshall Road/Ward Avenue	Two-Way Stop	8.7	A	8.8	A
31	SR-33/Marshall Road	Two-Way Stop	11.0	B	11.4	B
32	SR-33/Crows Landing Road/Fink Road	All-Way Stop	10.5	B	10.4	B

Notes:  
Intersections 26 and 27 do not currently exist.  
Source: AMG, 2020.

All the intersections operate at acceptable LOS D or better, except four intersections below that operates at either LOS E or LOS F:

- Sperry Avenue and I-5 Southbound Ramps
- Sperry Avenue and SR-33
- Rogers Road and SR-33
- SR-33 and Grayson Road

The I-5 Southbound off-ramp is currently stop control and it is the major gateway into the city from I-5. All traffic at the southbound off-ramp needs to stop which contributes to LOS F condition. Very high left-turn volumes during the PM peak-hours from Sperry Avenue and Rogers Road contributed to the LOS E conditions respectively at the intersections of Sperry Avenue and SR-33 and Rogers Road and SR-33. A Project Report and Project Approval & Environmental Documentation (PA & ED) is currently underway and the final design is estimated to be completed by December 2019.<sup>3</sup>

Both intersections are currently stop controlled intersections and would operate at an acceptable LOS if signalized.

### Roadways

Table 3.14-4 shows the arterial levels of service under existing conditions. Currently, all arterial segments operate acceptably during the AM and PM peak-hours.

**Table 3.14-4: Existing Roadway Segment LOS**

Link ID	Roadway	Segment	Northbound/Eastbound				Southbound/Westbound			
			AM		PM		AM		PM	
			Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
A	Sperry Avenue	Rogers Road—Park Center Drive	38.7	A	36.0	B	33.3	A	34.0	B
B	Baldwin Avenue	Sperry Avenue—Keystone Pacific Parkway	34.1	A	33.9	A	21.3	C	18.4	D
C	Ward Avenue	Barch Avenue—Elfers Road	39.1	A	39.0	A	39.1	A	38.9	A
D	West Marshall Road	Ward Avenue—SR-33	36.7	A	36.6	A	36.7	A	36.7	A
E	SR-33	South of Barch Avenue	37.7	A	35.1	B	38.2	A	34.8	B
F	Las Palmas Avenue	Sycamore Avenue—Elm Avenue	39.4	A	38.7	A	37.6	A	37.3	B
G	Las Palmas Avenue	Poplar Avenue—Jennings Road	42.4	A	41.9	A	42.1	A	41.4	A
H	SR-33	Walnut Avenue—Olive Avenue-Ivy Avenue	35.8	B	35.7	B	27.8	C	28.5	C
I	Eucalyptus Avenue	SR-33—Sycamore Avenue	44.3	A	44.1	A	45.0	A	45.0	A
J	Baldwin Road	Zacharias Road—SR-33	45.8	A	45.9	A	43.7	A	43.7	A
K	Zacharias Road	Rogers Road—Baldwin Road	41.8	A	41.8	A	45.9	A	45.9	A
L	Rogers Road	Zacharias Road—SR-33	43.1	A	43.1	A	45.2	A	45.3	A

Link ID	Roadway	Segment	Northbound/Eastbound				Southbound/Westbound			
			AM		PM		AM		PM	
			Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
M	SR-33	Zacharias Road—Baldwin Road	40.6	A	40.8	A	42.1	A	40.4	A
N	SR-33	Grayson Road—Rogers Road	38.5	B	38.9	B	42.4	A	42.3	A
O	SR-33	Crows Landing Road—Fink Road/Marshall Road	43.5	A	43.5	A	44.5	A	44.2	A

Source: AMG, 2020.

### Freeways

The freeway levels of service under existing conditions are shown in Table 3.14-5. Currently, both freeway segments operate acceptably during the peak-hour.

**Table 3.14-5: Existing Freeway Segment LOS**

Link ID	Freeway Segment	# Lanes	Existing					
			AM			PM		
			Volume (vph) <sup>a</sup>	Density (pc/mi/ln)	LOS	Volume (vph)	Density (pc/mi/ln)	LOS
Y	I-5 NB (north of Sperry Avenue)	2	1,335	11.6	B	1,508	13.4	B
	I-5 SB (north of Sperry Avenue)	2	1,227	12.1	B	1,806	18.5	C
Z	I-5 NB (south of Sperry Avenue)	2	1,100	10.0	A	1,408	13.5	B
	I-5 SB (south of Sperry Avenue)	2	1,089	9.8	A	1,397	13.6	B

Note:  
<sup>a</sup> peak-hour volume obtained from online Caltrans Traffic Counts, 2017  
 Source: AMG, 2020.

### Public Transit

The public transit system is provided by the Stanislaus Regional Transit (StaRT). The bus service provides local and regional connectivity for residents of Patterson. StaRT operates one fixed-route bus line (Route 40) that serves the City of Patterson, Grayson and Westley. This route operates from 5:15 a.m. and 9:12 p.m. on weekdays. Another fixed-route, Bus Line 45W, operates for Patterson, Turlock and Gustine. This route operates on weekdays from 5:37 a.m. and 9:21 p.m.

## Bicycles

Bicycle facilities are classified by Caltrans into four distinct types of bikeway facilities, as generally described below:

- **Class I Bikeway (Bike Path).** Provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized.
- **Class II Bikeway (Bike Lane).** Provides a restricted right-of-way and is designated for the use of bicycles with a striped lane on a street or highway. Vehicle parking and vehicle/pedestrian crossflow are permitted.
- **Class III Bikeway (Bike Route).** Provides for a right-of-way designated by signs or pavement markings for shared use with pedestrians or motor vehicles.
- **Class IV Bikeway (Separated Bikeway/Cycle Track).** Provides a cycle track or protected bike lane, is for the exclusive use of bicycles, physically separated from motor traffic with a vertical feature.

The Class II facilities are generally found along the downtown portion of the existing urbanized area. These facilities are found along parts of Las Palmas Avenue, Baldwin Road, American Eagle and 'M' Street.

The Class III Bike Route network is most prevalent in the Central Patterson area. However, there are gaps in the bike routes. Because of these gaps, it is difficult to fully traverse the city traveling north to south or east to west using the designated bicycle network.

## Rail

### *Freight*

The California Northern Railroad operates freight trains through Patterson, parallel to SR-33. The line connects Tracy and Los Banos, with multiple rail connections to local industries. The Union Pacific Railroad owns the tracks. Currently, there is one daily round trip train between Tracy and Los Banos through Patterson.

### *Grade Crossings*

The rail line has two grade crossing near the Zacharias Master Plan area: Zacharias Road and SR-33. Each is summarized as follows:

- **Zacharias Road:** This grade crossing only provides cross bucks. There are no gates, flashers, or concrete panel roadbed.
- **SR-33:** This grade crossing is protected with gates, flashers, and cross bucks. This crossing also provides a concrete panel roadbed over the tracks.

### *Passenger*

A passenger train station is located in Turlock-Denair, about 20 miles east of Patterson. Service is provided by the Amtrak California San Joaquins, which connect Oakland and Bakersfield and

Sacramento and Bakersfield. Fourteen daily trains (seven northbound and seven southbound) serve the Turlock-Denair station. Destinations along the San Joaquins route include Merced, Fresno, and Bakersfield to the south and Stockton, Antioch, Martinez, and Oakland to the north.

### 3.14.3 - Regulatory Framework

#### State

##### **California Department of Transportation**

California Department of Transportation (Caltrans) builds, operates, and maintains the State highway system, including the interstate highway system. Caltrans's mission is to improve mobility Statewide. The department operates under strategic goals to provide a safe transportation system, optimize throughput and ensure reliable travel times, improve the delivery of State highway projects, provide transportation choices, and improve and enhance the State's investments and resources. Caltrans controls the planning of the State highway system and accessibility to the system. Caltrans establishes LOS goals for highways and works with local and regional agencies to assess impacts and develop funding sources for improvements to the State highway system. Caltrans requires encroachment permits from agencies or new development before any construction work may be undertaken within the State's right-of-way. For projects that would impact traffic flow and levels of services on State highways, Caltrans would review measures to mitigate the traffic impacts.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway facilities (Caltrans 2002); however, Caltrans recognizes that achieving LOS C/LOS D may not always be feasible.

##### **Vehicle Miles Traveled**

In November 2017, the Governor's Office of Planning and Research (OPR) released a technical advisory containing recommendations regarding the assessment of vehicle miles traveled (VMT), proposed thresholds of significance, and potential mitigation measures for lead agencies to use while implementing the required changes contained in Senate Bill 743. Also in November 2017, OPR released the proposed text for Section 15064.3, "Determining the Significance of Transportation Impacts," which summarized the criteria for analyzing transportation impacts for land use projects and transportation projects and directs lead agencies to "choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure." OPR recommends that for most instances a per service population threshold should be adopted and that a fifteen percent reduction below that of existing development would be a reasonable threshold.

As noted in the OPR guidelines, agencies are directed to choose metrics that are appropriate for their jurisdiction to evaluate the potential impacts of a project in terms of VMT. The current deadline for adopting policies to implement SB 743 is January 2020; the change to VMT is anticipated to be formally adopted as part of updates to the CEQA guidelines in 2018. However, the City of Patterson has/has not established specific local VMT thresholds and industry-wide standards are still in the advisory stage. The latest direction from OPR also lists new exemptions for certain projects with revised screening thresholds (e.g., 100 trips/day, map based, or near transit stations). As such, a VMT

analysis is not required under CEQA at the time of Draft EIR release; new guidelines have not yet been adopted and the final guidelines may change based on the comments received.

## Regional

### ***Stanislaus Council of Governments***

The Stanislaus Council of Governments (StanCOG) is the Congestion Management Agency for Stanislaus County. StanCOG oversees implementation of the Congestion Management Plan and administers the Measure L Transportation Ordinance and Expenditure Plan. Measure L was approved by voters in 2016 and assesses a half-cent sales tax within Stanislaus County for transportation improvements. Additionally, StanCOG also is the lead agency for the South County Corridor Project and oversaw the preparation of the Feasibility Study Report for the project.

## Local

### ***City of Patterson***

#### *General Plan*

The General Plan establishes the following goals and policies relevant to transportation:

- **Goal T-1:** Street design and access standards shall provide for safe and efficient movement of goods and people. Restrictive traffic control measures (such as channelization, street closures, and prohibition of some traffic movements) shall be used where appropriate to promote traffic safety and efficient traffic operation.
- **Policy T-1.2:** The City shall endeavor to maintain a minimum Level of Service “D,” as defined by the 2000 Highway Capacity Manual or subsequent revisions, on all streets and intersections within the city. To identify the potential impacts of new development on traffic service levels, the City shall require the preparation of traffic impact analyses at the sole expense of the developer for developments determined to be large enough to have potentially significant traffic impacts. This standard does not apply to freeways which are governed by the standards established by Caltrans.
- **Policy T-1.3:** The City shall implement a hierarchical street system in which each street serves a specific, primary function and is sensitive to the context of the land uses served. The hierarchy of streets shall be based on the existing one square mile backbone grid system of streets along section lines and the traditional circulation pattern established in the City’s downtown. Development of residential neighborhoods within the backbone grid may employ a more circuitous street pattern with cul-de-sacs, traffic circles, roundabouts and other traffic calming features to help reduce traffic speeds.
- **Policy T-1.4:** Streets shall be dedicated, widened, extended, and constructed based on the roadway classifications/definitions and street sections provided in the City’s roadway improvement standards and Street Master Plan (see implementation measure T-2). Dedication and improvements of full rights-of-way shall not be required in existing developed areas where the City determines that such improvements are either infeasible or undesirable. Other deviations from these standards shall be permitted upon a determination by the City Engineer that safe and adequate public access and circulation are preserved by such deviations.

- **Policy T-1.5:** Neighborhood streets shall be designed, where feasible, to discourage unsafe traffic speeds.
- **Policy T-1.6:** The City shall promote efforts of Stanislaus County, StanCOG and other stakeholders in the development of the South County Corridor to connect W. Main Avenue to Interstate 5. The City's preference for the alignment of the South County Corridor is shown on the Circulation Plan (Figure II-4 of Chapter II. Land Use/Circulation Diagrams and Standards). However, the final alignment should be decided through a cooperative effort among stakeholders, and informed by a comprehensive feasibility study that assesses at least the following:
  - The appropriate right-of-way width and location;
  - Environmental and regulatory constraints, especially as they relate to agricultural and biological resources;
  - The need for, and economic/environmental feasibility of, constructing a second bridge over the San Joaquin River;
  - An estimate of relevant costs; and
  - An analysis of alternatives;
- **Policy T-1.8:** The primary purpose of streets outside the downtown is the movement of vehicles and goods; parking shall be a secondary and subordinate use only. If travel demands dictate, on-street parking may be removed on streets that serve primarily non-residential development to increase traffic-carrying capabilities.
- **Policy T-1.9:** Truck access to avoid residential neighborhoods. Industrial and commercial development shall be planned so that truck access through residential areas is avoided.
- **Policy T-1.10:** Funding of traffic improvements. The City shall ensure through a combination of traffic impact fees and other funding mechanisms that new development fully mitigates its impact on traffic facilities by paying its share of the costs of circulation improvements. New development shall pay a proportional share of costs of required improvements necessitated by the new development.
- **Policy T-1.11:** Private streets discouraged. The City shall discourage the development of private streets in new residential projects. Where private streets are allowed, they shall be constructed to City street standards.
- **Policy T-1.12:** Traffic calming encouraged. Traffic calming techniques, including roundabouts, traffic circles, 'chokers' and chicanes, shall be considered as an alternative to traditional intersection controls. Where cul-de-sacs are employed, consideration should be given to establishing connections between the cul-de-sac and other streets, parks, bicycle paths and pedestrian trails.
- **Policy T-1.13:** New interchange. The City shall investigate the construction of a new interchange at Interstate 5 north of Sperry Avenue in the vicinity of Zacharias Road.
- **Policy T-1.14:** Protection of Neighborhoods. The City shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.
- **Goal T-4:** To consider air quality and noise impacts along with traffic flow efficiency when making decisions about improvements to existing roadways or the construction of new roadways.

- **Policy T-4.1:** To the extent feasible, the City shall provide for separation of residential and other noise-sensitive land uses from major roadways to reduce noise and air pollution impacts from traffic.
- **Goal T-5:** To promote intergovernmental communication and cooperation concerning transportation-related issues.
- **Goal 6:** To ensure the adequate provision of both on- and off-street parking.
- **Policy T-6.2:** Off-street parking required. The City shall require provision of adequate off-street parking in conjunction with all new developments. Parking shall be located convenient to new development and shall be easily accessible from the street system. The adequacy and appropriateness of parking requirements in the Zoning Ordinance shall be periodically reevaluated.
- **Goal T-7:** To promote pedestrian, bicycle and rail travel as alternatives to automobile use.
- **Policy T-7.1:** The City shall create and maintain a safe and convenient system of pedestrian and bicycle pathways that encourages walking and bicycling as an alternative to driving. New development shall be required to pay its fair share of the costs for development of this pathway system.
- **Policy T-7.2:** All new development shall be reviewed to ensure safe pedestrian access is provided from the street, within parking areas and between new development and surrounding neighborhoods.
- **Policy T-7.3:** The City shall establish a safe and convenient network of identified bicycle routes connecting new residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. The City shall cooperate with surrounding jurisdictions in designing and implementing an area-wide bikeway system.
- **Policy T-7.4:** Bicycle routes shall emphasize paths separated from vehicle traffic (Class I) to the maximum extent possible, but shall also include bicycle lanes within public streets (Class II and III). The City shall limit on-street bicycle routes to those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.
- **Policy T-7.5:** To the extent practicable, bicycle and pedestrian pathways shall be included within open space areas.
- **Policy T-7.6:** The City shall require the inclusion of bicycle parking facilities at all new major public facilities and commercial and employment sites and shall encourage large employers to provide showers for employees.
- **Policy T-7.7:** The City shall promote the safe “sharing” of roads between automobiles and bicyclists.
- **Policy T-7.8:** Bicycle safety shall be considered when implementing improvements for automobile traffic operations.

#### *Improvement Funding Programs*

The City of Patterson has specific policies in the City’s General Plan and funding programs to ensure the City develops and manages the roadway system to maintain LOS D or better during the peak hour for intersections and roadways in the City. The City programs and funds improvements to its circulation network through the Capital Improvement Program in the City’s annual budget. Through the Capital Improvement Program, the City allocates funds to construct improvements as needed to

maintain the Level of Service defined in the Circulation Element of the General Plan. Sources of funding for improvements to the City's circulation network include its transportation impact fee, federal and state gas tax revenues, and grants.

Principal funding programs that provide transportation improvement funding in the City of Patterson include its Impact Fee Program and the State Transportation Improvement Plan (STIP) Program. Both of these programs are briefly described below.

#### *City of Patterson Impact Fee Program*

Under the City of Patterson's Impact Fee Program, fees are charged to new developments based on the size of the proposed construction (for example, units of residential or square footage of non-residential). This program provides a source of funds dedicated for a wide range of municipal facilities, which includes numerous fee categories. The Traffic/Road Improvement fee category provides funding for transportation improvement projects within the City to implement the 2030 General Plan Circulation Element by providing for the acceptable operation of intersections upon buildout of the General Plan. Buildout of the City's General Plan will require capacity improvements to transportation facilities (intersections and roadway segments) to support the increased demand. In terms of timing, the City has interpreted its General Plan to require that the public facilities necessary to accommodate such new development be provided concurrently or in advance of such development. The total costs of the transportation improvements, which were identified in the West Patterson Projects Final EIR, were used to calculate transportation impact fees based on estimated trips generated at buildout of the General Plan.

Monies collected through the Impact Fee Program become special revenue funds, which must be expended on transportation projects identified in the Impact Fee Study. As such, when a traffic impact study on a development project identifies impacts to intersections included in the Impact Fee Study, and those impacts that would result from that project's traffic, the mitigating improvements to address those impacts have already been included in the capital improvements identified for those intersections, and payment of impact fees by the project developer will typically constitute full mitigation for intersection impacts. Pursuant to the General Plan, the City's Capital Improvement Program must be updated on a periodic basis to ensure that improvements adequately address cumulative traffic conditions as they may evolve over time. To help assess these conditions and identify the necessary short-term and mid-term roadway improvements, the City has initiated a Traffic Monitoring Program, also to be updated periodically to assess short-term and mid-term circulation needs. The first results from the Traffic Monitoring Program evaluated nearly every intersection in the City's Impact Fee Study, and made recommendations on improvements over a 2-, 4-, and 6-year time horizon.

The I-5/Sperry Avenue Interchange project, which proposes to increase capacity along Sperry Avenue and the freeway on-ramps to accommodate future growth, is included in the Impact Fee Program. The Stanislaus Council of Governments' (StanCOG's) Travel Demand Model was used to calculate the percentage of future traffic growth through the I-5/Sperry Avenue Interchange attributable to the various land use categories (e.g., business park, commercial, residential). The impact fees necessary to construct the improvements were then allocated to the various land use

categories based on their percent contribution to the total peak-hour trips through the interchange. The City will assess these fees to future developments according to its land use category.

#### *State Transportation Improvement Plan*

The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other state funding sources. Improvement projects that provide regionwide significance are nominated by local agencies and regional transportation planning agencies such as StanCOG.

The I-5/Sperry Avenue interchange project is eligible for STIP funding, which, if made available, would offset a portion of the improvement costs for the interchange improvements. Pending approval, these funds would significantly minimize transportation impact fees assessed to future development.

#### *West Patterson Financing Authority*

The West Patterson Financing Authority was formed by the City of Patterson in 2001 to fund and implement necessary public infrastructure improvements in conjunction with new development on the west side of Patterson. The Patterson City Council acts as the West Patterson Financing Authority Board of Directors. The West Patterson Financing Authority established Community Facilities District No. 2001-01 (Public Improvements) in 2001 and Community Facilities District No. 2005-01 (West Patterson Business Park) in 2005. The boundaries of Community Facilities District No. 2001 01 generally encompass the residential development between Baldwin Avenue and Ward Avenue, and the boundaries of Community Facilities District No. 2005-01 encompass the 820-acre West Patterson Business Park. The West Patterson Financing Authority issued approximately \$73 million in Special Tax Bonds since 2002 to fund improvements. Special tax levies are assessed to properties with the Community Facilities Districts to repay the bonds.

### **3.14.4 - Methodology**

AMG prepared a Traffic Impact Study to evaluate potential traffic impacts of proposed Zacharias and Baldwin Master Plans. The following are key steps of the study approach:

- Collect traffic counts to establish baseline traffic conditions
- Develop travel demand model for the project
- Conduct trip generation and distribution of project trips
- Determine traffic condition for the following scenarios:
  - Existing + Approved Projects
  - Existing + Approved Projects + Proposed Project
  - 2040 Cumulative No Project
  - 2040 Cumulative Plus Project
  - 2040 Cumulative Plus Project (with new Zacharias Avenue/I-5 Interchange)
- Determine impact of project trips based on established Significance Criteria

## Modeling

The travel demand model recently calibrated and utilized for the Sperry Road at Interstate 5 Interchange Improvements project (hereafter, the I-5/Sperry Model) was selected as the modeling tool for this project. The I-5/Sperry Model was based on the travel demand model developed for the Crows Landing Industrial Business Park Transportation Infrastructure Master Plan (TIMP). The TIMP Model integrated the network and land use information from the Three-County Travel Demand Model and the data available from the City of Patterson Travel Demand Model available at that time. The base year of the TIMP Model is 2012, and the forecast year is 2035. It includes 6,772 Traffic Analysis Zones (TAZs) and 100 gateways.

### **Base Year Validation**

The following base year validation checks were conducted to the TIMP Model for the I-5/Sperry Traffic Operations Analysis Report (TOAR) project:

#### *Validation at Major Regional Facilities*

The calibrated 2012 TIMP model volumes to Caltrans counts were compared at selected locations on I-580, SR-99, and I-5 near the study area. Validation statistics for daily, AM/PM peak-hour volumes, were calculated based on criteria from Caltrans forecasting guidelines. The TIMP model met most of the validation targets.

#### *Comparison of the K and D Factors at Key Locations*

The K and D factors were calculated from the 2015 counts, the 2012 Model volumes before and after the calibration, and compared to the K and D factors provided by Caltrans. The K & D factors from the 2015 counts were very consistent with those provided by Caltrans, and the calibration improved the reasonableness of K & D factors from the 2012 model.

After the validation, the TIMP model was deemed appropriate for demand forecasting for I-5/Sperry project, based on “Guide on the Consistent Application of Traffic Analysis Tools and Methods”, FHWA 2011.

## Trip Generation

Trip generation is defined as the number of “vehicle trips” produced by a particular land use or project. A trip is defined as a one-direction vehicle movement. The total number of trips generated by each land use includes the inbound and outbound trips.

In consultation with staff, the trip generation estimates for the proposed land uses (residential, mixed-use, light industrial, commercial and school) were calculated using the standard reference Trip Generation, 10th Edition, published by the Institute of Transportation Engineers (ITE).

For this study, pass-by trip reduction based on ITE was applied. These trips, known as Pass-By trips, do not result in a route deviation for the existing vehicles as these vehicles are already traveling on a route that provides direct access to the project site. Therefore, these trips result in increased driveway traffic for the project site but do not result in an increase of traffic traveling through the

network. Without applying the Pass-By reduction, the trip estimation would effectively double count trips which are attributed to these vehicles.

Since the proposed project is a mixed of residential, commercial and light industrial development, it is anticipated that there would be some internal trips. Studies have shown that conventional use of ITE has overlooked the full potential for internalizing trips through interaction among on-site activities. The ITE trip generation data and analysis methods apply primarily to single-use and freestanding sites, which limits their applicability to compact, mixed-use development. In 2011, two major studies introduced methodologies for predicting traffic generation from mixed use development:

- i. National Cooperative Highway Research Program (NCHRP) Report 684, “Enhancing Internal Trip Capture Estimation for Mixed- Use Developments,” analyzed internal-capture relationships of mixed-use sites and examined the travel interactions among six individual types of land uses: office, retail, restaurant, residential, cinema, and hotel; and
- ii. The U.S. EPA–sponsored 2011 report, “Traffic Generated by Mixed-Use Developments — A Six-Region Study Using Consistent Built Environmental Measures,” investigated trip generation, mode choice, and trip length for trips produced and attracted by mixed use developments. Researchers selected six regions — Atlanta, Boston, Houston, Portland, Sacramento, and Seattle — to represent a wide range of urban scale, form, and climatic condition. It was concluded that the ITE Trip Generation Manual and Handbook overestimate peak traffic generation for mixed-use development by an average of 35 percent.

For this project, AMG assumed that approximately 10 percent of trips are internal trips by customers who frequent the retail, might also patronize the mixed use and other uses. The estimated potential trip generation of the proposed project is shown in Table 3.14-6. It is estimated that the project will generate approximately 7,047 and 8,047 total trips during the AM and PM peak-hours, respectively.

**Table 3.14-6: Proposed Project Trip Generation**

TAZ	Land Use	ITE Code	Size		AM Peak				PM Peak			
					Rate	In	Out	Total	Rate	In	Out	Total
A	Medium Density Residential	ITE220	343	DU	0.46	36	122	158	0.56	122	71	193
B	Medium Density Residential	ITE220	595	DU	0.46	63	211	274	0.56	210	124	334
C	Medium Density Residential	ITE220	272	DU	0.46	29	97	126	0.56	96	57	153
	High Density Residential	ITE221	147	DU	0.36	14	39	53	0.44	40	25	65
	Mixed Use	ITE 820	315	KSF	Eq.	192	118	310	Eq.	610	661	1,271
D	Medium Density Residential	ITE220	471	DU	0.46	50	167	217	0.56	166	98	264

Transportation

TAZ	Land Use	ITE Code	Size		AM Peak				PM Peak			
					Rate	In	Out	Total	Rate	In	Out	Total
E	Medium Density Residential	ITE220	340	DU	0.46	36	121	157	0.56	120	71	191
	High Density Residential	ITE221	246	DU	0.36	23	66	89	0.44	66	43	109
	Elem School (K-6)	ITE 520	500	STU	0.67	181	154	335	0.17	41	44	85
	Mixed Use	ITE 820	190	KSF	Eq.	153	94	247	Eq.	420	454	874
F	Medium Density Residential	ITE220	605	DU	0.46	64	215	279	0.56	214	125	339
	High Density Residential	ITE221	216	DU	0.36	20	58	78	0.44	59	37	96
G	Low Density Residential	ITE210	431	DU	0.74	80	239	319	0.99	269	158	427
H	Light Industrial(Warehouse)	ITE 150	2,730	KSF	0.17	358	116	465	0.19	140	379	519
I	Light Industrial	ITE110	4,181	KSF	0.7	2,576	351	2,927	0.63	1,659	975	2,634
J	Medium Density Residential	ITE220	700	DU	0.46	74	248	322	0.56	247	145	392
	Community Commercial	ITE 820	350	KSF	Eq.	203	124	327	Eq.	660	714	1,374
K	Medium Density Residential	ITE220	320	DU	0.46	34	114	148	0.56	113	67	180
	Low Density Residential	ITE210	400	DU	0.74	74	222	296	0.99	249	147	396
	Middle School	ITE 522	900	STU	0.58	282	240	522	0.17	75	78	153
L	Medium Density Residential	ITE220	395	DU	0.46	42	140	182	0.56	140	82	222
<b>Sub-Total 1</b>						<b>4,584</b>	<b>3,256</b>	<b>7,831</b>	<b>—</b>	<b>5,716</b>	<b>4,555</b>	<b>10,271</b>
<b>Pass-By Reductions<sup>a</sup></b>												
Mixed Use/Commercial		ITE 820	—	—	—	—	—	—	-34%	-575	-622	-1,196
<b>Sub-Total 2</b>						<b>4,584</b>	<b>3,256</b>	<b>7,831</b>	<b>—</b>	<b>5,141</b>	<b>3,933</b>	<b>9,075</b>
<b>Internal Trip Reductions<sup>b</sup></b>												
10% Internal Trip Assumption					-10%	-458	-326	-784	-10%	-572	-456	-1,028
<b>Total New Trips</b>						<b>4,126</b>	<b>2,930</b>	<b>7,047</b>	<b>—</b>	<b>4,569</b>	<b>3,477</b>	<b>8,047</b>
Notes:												
<sup>a</sup> 34% Ave. Pass-by trips for shopping center (ITE 820, ITE Handbook)												
<sup>b</sup> Internal trips of 10% used (NCHRP 684)—lower than shown in NCHRP 684 or EPA Study ITE Source: ITE Trip Generation Manual 10th Edition, 2017												
Source: AMG, 2020.												

## Proposed Access and Circulation

The proposed circulation plans for Zacharias Master Plan and Baldwin Master Plan are shown in Exhibit 3.14-3. Comprehensive travel is provided through use of arterials for crosstown travels, major and minor collectors to distribute traffic collected from local residential streets.

### ***Zacharias Master Plan***

East-west major collectors include Zacharias Road, which will also serve as a major arterial on the northern boundary of the project. This major collector/arterial provides east-west connections from Rogers Road in the west to SR-33 to the east. There are three north-south major collectors including Rogers Road, Baldwin Road and Ward Avenue that will facilitate traffic flow throughout the whole development. Traffic flow through the various neighborhoods of the development would be facilitated by several minor collector streets including the new east-west connector (to the north of Ivy Avenue) across the PID Canal that will intersect with Ward Avenue and connect to SR-33 to the east.

The new intersection with SR-33 would be signalized. The existing Ward Avenue / SR-33 intersection would either be closed or converted to restricted access (e.g., right-in, right-out). Ward Avenue would ultimately be extended along the west side of the railroad tracks to provide access to the northern portion of the Ranchette Triangle. To ensure pedestrian and bike safety, many of the neighborhood streets would be designed with traffic calming geometric features including curvilinear streets and roundabout at strategic locations to calm traffic. Neighborhood subdivisions are generally designed around various grid to provide maximum access points for pedestrian access and bike travel.

### ***Baldwin Master Plan***

Access from the proposed neighborhood is provided by three minor east-west collectors that connect to the major collector street, Baldwin Road. North-south travel is provided by a proposed minor collector street on the western boundary of the project which would parallel the Delta Mendota Canal.

## 3.14.5 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether transportation impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

- a) Conflict with a program plan, ordinance or policy of the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- d) Result in inadequate emergency access?

### 3.14.6 - Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

#### Existing Plus Approved Plus Project Traffic Conditions

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**Impact TRANS-1:** Buildout of the Master Plans would generate traffic under Existing Plus Approved Plus Project Conditions that may conflict with a program plan, ordinance or policy of the circulation system.

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#### *Impact Analysis*

This impact assesses Existing plus Approved Plus Project Traffic Conditions.

#### *Baldwin Master Plan / Zacharias Master Plan*

To more accurately represent traffic access in the model, 11 Traffic Analysis Zones (TAZs) were created to represent the Zacharias Master Plan and one TAZ in the Baldwin Master Plan.

#### *Intersections*

As indicated earlier, the National Cooperative Highway Research Program (NCHRP) Report 255 Difference Method was applied to calculate the travel demand forecasts for the scenario. As appropriate, volumes were adjusted at several intersections to more reasonably reflect planned future driveways and traffic distributions.

A new east-west connector across the PID Canal (to the north of Ivy Avenue) would be added and would intersect with Ward Avenue and connect to SR-33 to the east. The new intersection with SR-33 would be signalized. To facilitate good traffic flow of project traffic, it is assumed that a higher capacity residential collector would be designed to connect from SR-33 in the east to Rogers Road to the west. It is assumed that the existing Ward Avenue/SR-33 intersection would either be closed or converted to restricted access (e.g., right-in, right-out).

Exhibit 3.14-4 shows the Existing plus Approved Traffic Conditions peak-hour turning movement volumes and lane geometry.

Exhibit 3.14-5 shows the Existing plus Approved plus Project Traffic Conditions peak-hour turning movement volumes and lane geometry. Table 3.14-7 shows the LOS under Existing plus Approved plus Project Traffic Conditions.

**Table 3.14-7: Existing plus Approved plus Project Intersection LOS**

Intersection		Existing plus Approved Plus Proposed Project					Existing plus Approved plus Project—Mitigated				
		Existing Control	AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Sperry Avenue/I-5 SB Off-Ramps	One-Way	352	F	599	F	Signal	42.9	D	82.5	F
2	Sperry Avenue/I-5 NB On-Ramps	One-Way	2,242	F	1,431	F	Signal	40.2	D	31.2	C
3	Sperry Avenue/Rogers Road	Signal	104	F	143	F	Signal	40.3	D	83.4	F
4	Sperry Avenue/Park Center Drive	Signal	11	B	25	C	Signal	10.8	B	17.7	B
5	Sperry Avenue/Baldwin Road	Signal	85	F	89	F	Signal	49.5	D	36.4	D
6	Sperry Avenue/American Eagle Drive	Signal	28	C	18	B	Signal	28.3	C	10.1	B
7	Sperry Avenue/Ward Avenue	Signal	62	E	52	D	Signal	29.9	C	32.9	C
8	Sperry Avenue/South Del Puerto Avenue	Signal	15	B	10	B	Signal	13.3	B	34.2	B
9	Sperry Avenue/SR-33	Two-Way	15	C	13	B	Signal	37.7	D	30.3	C
10	Walnut Avenue/M Street/SR-33	Signal	328	F	312	F	Signal	47.8	D	29.4	C
11	SR-33/Las Palmas Avenue	Signal	73	E	45	D	Signal	35.6	D	51.5	D
12	Olive Avenue/SR-33	Two-Way	85	F	220	F	Signal	51.2	D	54.2	D
13	Park Center/Keystone Pacific Parkway	Two-Way	1,841	F	1,952	F	Signal	32.7	C	34.8	C
14	Rogers Road/Keystone Pacific Parkway	Two-Way	28	D	23	C	Signal	35.4	D	51.5	D
15	Rogers Road/Zacharias Road	Two-Way	94,934	F	18	C	Signal	46.7	D	54.2	D
16	Baldwin Road/Zacharias Road	All-Way Stop	1,059	F	1,011	F	Signal	32.6	C	50.8	D
17	Zacharias Road/SR-33	Two-Way	258	F	1,855	F	Signal	41.7	D	54.3	D
18	Ward Avenue/SR-33	One-Way	—	—	—	—	—	—	—	—	—
19	SR-33/Eucalyptus Avenue	One-Way	4,106	F	9,013	F	Signal	27.6	C	18.1	B
20	Baldwin Road/SR-33	One-Way	3,393	F	8,404	F	Signal	34.7	C	30.6	C
21	Rogers Road/SR-33	One-Way	1,567	F	3,489	F	Signal	18.2	B	25.1	C
22	Sycamore	Two-Way	48	E	326	F	Signal	8.2	A	8.4	A

Intersection		Existing plus Approved Plus Proposed Project					Existing plus Approved plus Project—Mitigated				
		Existing Control	AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
	Avenue/Eucalyptus										
23	Elm Avenue/Eucalyptus Avenue	Two-Way	25	D	13	B	Two-Way	24.4	C	12.8	B
24	Sycamore Avenue/Las Palmas Avenue	Signal	56	E	107	F	Signal	34.5	C	39.7	D
25	Elm Avenue/Las Palmas Avenue	Signal	123	F	56	E	Signal	33.0	C	24.6	C
26	Jennings Road/West Main Avenue	One-Way	1,596	F	385	F	Signal	43.5	D	25.2	C
27	SR-33/New East-West Connection	All-Way Stop	256	F	316	F	Signal	12.4	B	16.8	B
28	Ward Avenue/New East-West Connection	All-Way Stop	233	F	335		Signal	17.1	B	18.8	B
29	SR-33/Grayson Road	All-Way Stop	907	F	1,234	F	Signal	37.5	D	46.1	D
30	Marshall Road/Ward Avenue	Two-Way Stop	16	C	19	C	Two-Way Stop	15.5	C	18.6	C
31	SR-33/Marshall Road	Two-Way Stop	105	F	1711	F	Two-Way Stop	6.2	A	13.9	B
32	SR-33/Crows Landing Road/Fink Road	All-Way Stop	81	F	81	F	All-Way Stop	9.1	A	6.2	A

Note:  
**BOLD** = Deficient levels of service  
 Source: AMG 2020.

Under Existing plus Approved Plus Proposed Project Conditions, 24 intersections would operate at deficient levels.

**Roadways**

Table 3.14-8 shows the arterial levels of service under Existing plus Approved plus Project Traffic Condition. Several arterial segments need to be widened to operate acceptably during the AM and PM peak-hours.

**Table 3.14-8: Existing plus Approved plus Project Traffic Condition Roadway Segment LOS**

Link ID	Roadway	Segment	Existing Plus Approved Plus Proposed Project								Existing Plus Approved Plus Proposed Project (Mitigated)							
			Northbound/Eastbound				Southbound/Westbound				Northbound/Eastbound				Southbound/Westbound			
			AM		PM		AM		PM		AM		PM		AM		PM	
Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	
A	Sperry Avenue	Rogers Road/Park Center Drive	32.9	B	9.3	F	15.9	E	26.9	C	38.4	B	33.7	B	25.0	C	23.2	D
B	Baldwin Avenue	Sperry Avenue/Keystone Pacific Parkway	31.5	B	33.4	A	18.3	D	7.4	F	31.5	B	33.4	A	18.3	D	16.0	D
C	Ward Avenue	Barch Avenue/Elfers Road	37.5	A	36.7	A	38.6	A	36.7	A	37.5	A	36.7	A	38.6	A	36.7	A
D	West Marshall Road	Ward Avenue/SR-33	36.8	A	35.7	A	36.1	A	36.8	A	36.8	A	35.7	A	36.1	A	36.8	A
E	SR-33	South of Barch Avenue	32.3	B	33.5	B	34.4	B	32.3	B	32.3	B	33.5	B	34.4	B	32.3	B
F	Las Palmas Avenue	Sycamore Avenue/Elm Avenue	35.7	B	35.5	B	33.7	B	33.8	B	35.7	B	35.5	B	33.7	B	33.8	B
G	Las Palmas Avenue	Poplar Avenue/Jennings Road	42.4	A	41.1	A	40.2	A	37.6	B	42.4	A	41.1	A	40.2	A	37.6	B
H	SR-33	Walnut Avenue/Olive Avenue-Ivy Avenue	39.6	A	32.0	B	6.5	F	18.1	D	27.9	C	32.0	B	22.9	C	18.1	D
I	Eucalyptus Avenue	SR-33/Sycamore Avenue	44.1	A	44.0	A	44.0	A	44.7	A	44.1	A	44.0	A	44.0	A	44.7	A
J	Baldwin Road	Zacharias Road/SR-33	45.0	A	45.2	A	40.5	A	38.6	B	45.0	A	45.2	A	40.5	A	38.6	B
K	Zacharias Road	Rogers Road/Baldwin Road	36.5	B	40.4	A	35.1	A	36.9	B	36.5	B	40.4	A	35.1	A	36.9	B
L	Rogers Road	Zacharias Road/SR-33	45.6	A	40.2	A	41.4	A	8.6	F	45.6	A	38.4	B	41.4	A	39.3	B
M	SR-33	Zacharias Road/Baldwin Road	40.9	A	42.7	A	40.3	A	39.6	B	40.9	A	42.7	A	40.3	A	39.6	B
N	SR-33	Grayson Road/Rogers Road	41.8	A	39.4	A	40.4	A	41.2	A	44.9	A	44.7	A	44.8	A	44.4	A
O	SR-33	Crows Landing Road—Fink Road/Marshall Road	44.4	A	45.2	A	45.6	A	44.3	A	44.4	A	45.2	A	45.6	A	44.3	A

Source: AMG 2020.

**Freeways**

The freeway levels of service under Existing plus Approved plus Project Traffic Condition are shown in Table 3.14-9. Both freeway segments would operate acceptably during the peak-hour.

**Table 3.14-9: Existing plus Approved plus Project Freeway Segment LOS**

Link ID	Freeway Segment	EPAPP						
		# Lanes	AM			PM		
			Volume (vph)	Density (pc/mi/ln)	LOS	Volume (vph)	Density (pc/mi/ln)	LOS
Y	I-5 NB (north of Sperry Avenue)	2	1,764	27.9	D	1,681	26.3	D
	I-5 SB (north of Sperry Avenue)	2	1,881	32.1	D	1,884	34.4	D
Z	I-5 NB (south of Sperry Avenue)	2	1,808	28.9	D	1,172	19.5	C
	I-5 SB (south of Sperry Avenue)	2	1,567	24.3	C	1,338	22.3	C

Note:

Source: AMG, 2020.

*Required Improvements*

Twenty-one of the 28 study intersections would operate at deficient levels and, therefore, require mitigation. Based on the results of the projected traffic for the Existing plus Approved plus Proposed Project, intersections that require improvement measures in this scenario are described below:

**Community Facilities District or Other Financing Mechanism**

The City of Patterson and project applicant intend to pursue a Community Facilities District or other financing mechanism similar to the existing Community Facilities District No. 2005-01 for the West Patterson Business Park to fund and implement public infrastructure improvements for the proposed Master Plans. The financing mechanism would be overseen by the City of Patterson and would have the ability to issue bonds for infrastructure improvements and levy assessments against property owners within the district boundaries to repay the bonds. When Master Plan buildout triggers the need for the improvements, the City would use the bond proceeds to install the improvements. In cases where the necessary improvement is located on a facility outside of the jurisdictional control of the City of Patterson, the City would work with the relevant agency (i.e., the County of Stanislaus or Caltrans) to implement the improvement. Mitigation Measure TRANS-1a requires the applicant and the City to establish the financing mechanism prior to recordation on the first final map.

**1. Sperry Avenue /I-5 SB Ramps, and 2. Sperry Avenue /I-5 NB Ramps**

As indicated earlier, a Project Report and Project Approval & Environmental Documentation (PA & ED) for Sperry Avenue and I-5 interchange is underway. The intersection would improve to LOS D or better after signal improvement during the AM peak-hour. However, the Southbound Off-Ramp intersection would operate at unacceptable LOS F during the PM peak-hour. Traffic adaptive signal operations might improve the operations to acceptable level of service. This improvement is reflected in Mitigation Measure TRANS-1b.

**3. Sperry Avenue/Rogers Road**

Add additional eastbound left turn, eastbound right-turn and add additional through lane for both directions making Sperry Avenue four lane road. Northbound double left-turn, through and right-turn lanes would be required to serve future commercial land use south of Sperry Avenue. The intersection would improve to LOS D or better during the AM peak-hour. However, the intersection would operate at unacceptable LOS F during the PM peak-hour. This improvement is reflected in Mitigation Measure TRANS-1c.

**4. Sperry Avenue/Rogers Road**

Add additional eastbound through lane making Sperry Avenue four lane road. This improvement is reflected in Mitigation Measure TRANS-1d.

**5. Sperry Avenue/Baldwin Road**

Add additional eastbound through lane making Sperry Avenue four lane road. Additional northbound left-turn lane might be required. This improvement is reflected in Mitigation Measure TRANS-1d.

**8. Sperry Avenue/Del Puerto Avenue**

Add additional eastbound through lane on Sperry Avenue. This improvement is reflected in Mitigation Measure TRANS-1e.

**9. Sperry Avenue/SR-33**

Signalize intersection and add left-turn lane to each approach. Two left-turn lane might be required in the northbound. This improvement is reflected in Mitigation Measure TRANS-1f.

**10. M Street/Walnut Avenue/SR-33**

Add shared through and right-turn lane in the southbound, add additional westbound left-turn lane and northbound right-turn lane. Add a second northbound through lane on SR-33. This improvement is reflected in Mitigation Measure TRANS-1g.

**12. Olive Avenue/SR-33**

Signalize intersection and add left-turn lane to each approach. Add a second through lanes in each direction on SR-33. This improvement is reflected in Mitigation Measure TRANS-1h.

**13. Park Center/Keystone Pacific**

Signalize intersection and add turn lanes. Add eastbound right-turn lane and northbound left-turn lane. Needs further evaluation. This improvement is reflected in Mitigation Measure TRANS-1i.

**14. Rogers Road/Keystone Pacific**

Signalize intersection and add left-turn lane to each approach. Rogers Road should be widened to two lanes on each approach. Add a second southbound through lane. At the intersection, Keystone Pacific might need to provide for two through lanes. No Parking might be required on the first block near the intersection. This improvement is reflected in Mitigation Measure TRANS-1j.

**15. Rogers Road/Zacharias Road**

Signalize intersection and add left-turn lane on each approach. Zacharias Road should be widened to two lanes on each approach. Three through lanes might be required on northbound approach on Rogers Road. This improvement is reflected in Mitigation Measure TRANS-1k.

**16. Baldwin Road /Zacharias Road**

Signalize intersection and add left-turn lane to each approach. Add additional westbound left-turn lane. Add right-turn lane and additional through lane on northbound and southbound Baldwin Road. This improvement is reflected in Mitigation Measure TRANS-1l.

**17. Zacharias Road/SR-33**

Signalize intersection. Add two left-turn lanes on north and two right-turn lane in the eastbound approach. It is our understanding that the intersection might be redesigned to extend and connect with Eucalyptus Avenue under the South County Corridor plan. This improvement is reflected in Mitigation Measure TRANS-1m.

**19. SR-33/Eucalyptus Avenue**

Signalize intersection. SR-33 should be widened to two lanes on each approach. This improvement is reflected in Mitigation Measure TRANS-1n.

**20. Baldwin Road /SR-33**

Signalize intersection and add left-turn lane in the northbound. Add additional eastbound left-turn lane and additional through lane on northbound approach. SR-33 should be widened to two lanes in both directions. This improvement is reflected in Mitigation Measure TRANS-1o.

**21. Rogers Road/SR-33**

Signalize intersection. Add left-turn lane and right-turn lane on eastbound approach. SR-33 should be widened to two lanes in both directions. Add additional eastbound left-turn lane and additional through lane on northbound approach. This improvement is reflected in Mitigation Measure TRANS-1p.

**24. Sycamore Avenue/E. Las Palmas Avenue**

Signalize intersection. Add left-turn lane to north-south approach. This improvement is reflected in Mitigation Measure TRANS-1q.

**26. West Main Avenue /Jennings Avenue**

Signalize intersection and add eastbound left-turn lane. West Main Avenue should be widened to two lanes in both directions. This improvement is reflected in Mitigation Measure TRANS-1r.

**27. SR-33/New East-West Connection**

Signalize intersection and add two northbound left-turn and one southbound right-turn lanes. SR-33 should be widened to two lanes in both directions. This improvement is reflected in Mitigation Measure TRANS-1s.

**28. Ward Avenue/New East-West Connection**

Signalize intersection and add two northbound left-turn lanes. It is recommended that the New East-West Connection roadway should consider having two lanes in both directions. The project should pay its fair share for all intersections and roadway improvements. This improvement is reflected in Mitigation Measure TRANS-1t.

**29. SR-33/Grayson Road**

Signalize the intersection. The project should pay its fair share for all intersections and roadway improvements. This improvement is reflected in Mitigation Measure TRANS-1u.

**31. SR-33/Marshall Road**

Signalize the intersection. The project should pay its fair share for all intersections and roadway improvements. This improvement is reflected in Mitigation Measure TRANS-1v.

**32. SR-33/Crows Landing Road/Fink Road**

Signalize the intersection. The project should pay its fair share for all intersections and roadway improvements. This improvement is reflected in Mitigation Measure TRANS-1w.

**Conclusion**

Buildout of the Master Plans would contribute new trips to intersections, roadways, and freeways forecast to operate at unacceptable levels. Twenty-six feasible mitigation measures are proposed to reduce project impacts. However, for certain facilities, the improvements would not restore operations to acceptable levels. In addition, mitigation measures are proposed for facilities that are outside the jurisdiction of the City of Patterson and, therefore, uncertainty exists regarding their implementation. For these reasons, the impact is significant and unavoidable.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

Implement Mitigation Measures TRANS-2a, TRANS-2b, and:

**MM TRANS-1a** Prior to recordation of the first final map, the project applicant and the City of Patterson shall establish a Community Facilities District or other financing mechanism to fund transportation improvements. Applicants that pursue development in accordance with the Baldwin Master Plan and Zacharias Master Plan shall contribute a fair share of the costs of necessary improvements at the time building permits are sought through participation in the Community Facilities District or other financing mechanism.

**MM TRANS-1b** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the Interstate 5 / Sperry Avenue interchange. The improvements shall consist of the installation of signals at both ramp terminals and adaptive signal operations. These improvements shall be

programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

- MM TRANS-1c** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the Sperry Avenue / Rogers Road intersection. The improvements shall consist of additional eastbound left turn, eastbound right-turn and add additional through lane for both directions making Sperry Avenue four lane road. In addition, the improvements shall include the following lane geometry for Rogers Road extension northbound approach: double left-turn, through and right-turn lanes. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1d** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for widening Sperry Avenue to four lanes between Rogers Road and Baldwin Road. If determined to be necessary by the City of Patterson, an additional northbound left turn lane shall be installed. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1e** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for adding an eastbound through lane to Sperry Avenue at Del Puerto Avenue. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1f** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Sperry Avenue/State Route 33. The improvements shall consist of signaling the intersection and adding a left turn lane to each approach. If determined to be necessary by the City of Patterson, a second left turn lane shall be installed on the north bound approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1g** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of M Street / Walnut Avenue / State Route 33. The improvements shall consist of installing a shared through and right-turn lane on the southbound approach, an additional westbound left-turn lane and northbound right-turn lane and second through lane. If determined to be necessary by the City of Patterson, two through lanes shall be installed on SR-33. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

- MM TRANS-1h** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Olive Avenue / State Route 33. The improvements shall consist of signaling the intersection, adding a left turn lane to each approach and adding a second through lane on the northbound and south bound approaches. If determined to be necessary by the City of Patterson, a second left turn lane shall be installed on the north bound approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1i** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Park Center / Keystone Pacific Parkway. The improvements shall consist of signaling the intersection and adding an eastbound right-turn lane and northbound left-turn lane. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1j** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Rogers Road / Keystone Pacific Parkway. The improvements shall consist of signaling the intersection, adding a left turn lane to each approach, widening Rogers Road to two through lanes on each approach, and widening Keystone Pacific Parkway to two through lanes on each approach. In addition, a second southbound through lane on Rogers Road shall be installed. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1k** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Rogers Road / Zacharias Road. The improvements shall consist of signaling the intersection, adding a left turn lane to each approach, and widening Zacharias Road to two through lanes on each approach. If determined to be necessary by the City of Patterson, Rogers Road shall be widened to provide three through lanes on the northbound approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1l** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Baldwin Road / Zacharias Road. The improvements shall consist of signaling the intersection, adding a left turn lane to each approach, adding a second westbound left-turn lane, adding a right turn lane and additional through lane on northbound and southbound Baldwin Road, and widening Zacharias Road to two through lanes on each approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

- MM TRANS-1m** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Zacharias Road / State Route 33. The improvements shall consist of adding two left-turn lanes on the northbound approach and two right-turn lanes on the eastbound approach. Additionally, the existing railroad grade crossing adjacent to this intersection shall be upgraded with gates, flashers, and a concrete panel roadbed. Because the proposed South County Corridor would reconfigure this intersection as an overcrossing, the City of Patterson has the discretion to forego this mitigation measure in order to avoid conflicts with the planned improvements. The City shall transfer the fees to Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1n** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of State Route 33 / Eucalyptus Avenue. The improvements shall consist of signaling the intersection and widening State Route 33 to provide two lanes on each approach. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1o** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Baldwin Road / State Route 33. The improvements shall consist of signaling the intersection, adding a left turn lane on the northbound approach, and widening State Route 33 to provide two lanes on each approach. In addition, an additional eastbound left-turn lane and additional through lane on the northbound approach shall be installed. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1p** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Rogers Road / State Route 33. The improvements shall consist of signaling the intersection, adding a left turn lane on the northbound approach, and widening State Route 33 to provide two lanes on each approach. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1q** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of Sycamore Avenue /

E. Las Palmas Avenue. The improvements shall consist of signaling the intersection, adding left turn lanes on the northbound and southbound approaches. The City shall transfer the fees to the County of Stanislaus to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

**MM TRANS-1r** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of West Main Avenue / Jennings Avenue. The improvements shall consist of signaling the intersection, adding a left turn lane on the eastbound approach. The City shall transfer the fees to the County of Stanislaus to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

**MM TRANS-1s** Prior to issuance of the first occupancy permit for the portion of the Zacharias Master Plan located east of Baldwin Road, the project applicant shall install improvements to the planned intersection of State Route 33 / East-West Connection. The improvements shall consist of signaling the intersection, installing two northbound left-turn and one southbound right-turn lanes, and widening State Route 33 to two lanes in each direction. The applicants are responsible for the full cost of these improvements. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

**MM TRANS-1t** Prior to issuance of the first occupancy permit for the portion of the Zacharias Master Plan located east of Baldwin Road, the project applicant shall install improvements to the planned intersection of Ward Avenue / East-West Connection. The improvements shall consist of signaling the intersection, installing two northbound left-turn lanes. If determined to be necessary by the City of Patterson, The East-West Connection shall provide two lanes in each direction. The applicants are responsible for the full cost of these improvements. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

**MM TRANS-1u** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of SR-33 / Grayson Road. The improvements shall consist of signaling the intersection. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

- MM TRANS-1v** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of State Route 33/ Marshall Road. The improvements shall consist of signaling the intersection. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1w** Prior to issuance of a building permit, the project applicant shall pay fair share fees to the City of Patterson for improvements to the intersection of State Route 33 / Crows Landing Road. The improvements shall consist of signaling the intersection. The City shall transfer the fees to the County of Stanislaus or Caltrans to implement the improvement provided that an agreement is in place with the respective agencies. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1x** When monitoring determines that SR-33 between Baldwin Avenue and Sperry Avenue is approaching deficient operations, the 2-lane portion of this roadway shall be widened to four lanes. The City shall transfer the fees Caltrans to implement the improvement provided that an agreement is in place with this agency. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.
- MM TRANS-1y** When monitoring determines that Zacharias Road between west of Baldwin Road and SR-33 is approaching deficient operations, the roadway shall be widened to four lanes. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a.

***MM TRANS-1z When monitoring determines that Baldwin Road between north of Zacharias Road and the New East-West Connector is approaching deficient operations, the roadway shall be widened to four lanes. These improvements shall be programmed into the Community Facilities District or other financing mechanism contemplated by Mitigation Measure TRANS-1a. Level of Significance After Mitigation***

Significant unavoidable impact.

### **2040 Cumulative Plus Project Traffic Conditions**

**Impact TRANS-2: Buildout of the Master Plans would generate traffic under 2040 Cumulative Plus Project Conditions that may conflict with a program plan, ordinance or policy of the circulation system.**

#### ***Impact Analysis***

This impact assesses 2040 Cumulative Plus Project Traffic Conditions.

### ***Baldwin Master Plan / Zacharias Master Plan***

To preserve the enhanced validation results in the Patterson area in the TIMP Model while maintaining consistency with the StanCOG 2014 Regional Transportation Plan/Sustainable Committee Strategy (RTP/SCS) forecasts for the rest of the region, a FRATAR adjustment was applied to the TIMP Model 2035 trip tables using TIMP Model 2035 trip ends as targets for Patterson zones, and StanCOG Model 2035 trip ends as targets for the other zones. Thus, the 2035 TIMP Model trip tables are consistent with StanCOG 2014 RTP/SCS projections.

#### *Interstate 5 Mainline Traffic Growth*

The Interstate 5 traffic forecasts in the project area used an annual growth rate of approximately 1.5 percent for the design projections to account for additional local trips due to modified land uses in the amended City of Patterson General Plan.

The NCHRP 255 Difference Method was applied to calculate the travel demand forecasts for the existing conditions (2019) and the future cumulative conditions (2040). Average annual growth by inbound direction at study intersections and by direction at study segments were first calculated based on 2012 and 2035 TIMP Model forecasts. The total growth from the existing conditions (2019) to the future cumulative conditions (2040) were then added to the observed counts to obtain the forecasts for the future cumulative conditions (2040). As appropriate, volumes were adjusted at several intersections to more reasonably reflect planned future driveways and traffic distributions.

#### ***2040 Cumulative Plus Project – No Zacharias Interchange***

Two 2040 Cumulative scenarios were modeled: No Zacharias Interchange and New Zacharias Interchange. Under the former scenario, the planned I-5 / Zacharias Road / South County Corridor interchange would not be developed. Under the latter scenario, the planned interchange would be developed.

#### *Intersections*

This section presents the assessment of potential transportation impacts of 2040 Cumulative No Project Traffic Conditions. Exhibit 3.14-6 shows the 2040 Cumulative No Project Traffic Conditions peak-hour turning movement volumes and lane geometry.

Table 3.14-10 shows the LOS under 2040 Cumulative No Project Traffic Conditions. It is assumed that proposed improvements Sperry Avenue and I-5 Interchange would be implemented including signalization and widening to four lanes. The intersection would improve to LOS D or better after signal improvement. In addition, it is assumed that the level of intersections and roadway improvements under the Existing plus Approved Projects scenario would be available under this future cumulative base scenario.

Exhibit 3.14-7 shows 2040 Cumulative plus Project Peak Hour Turning Movements and lane geometry. Table 3.14-10 shows the LOS under 2040 Cumulative plus Project Peak Hour Turning Movements. It is assumed that proposed improvements Sperry Avenue and I-5 Interchange would be implemented including signalization and widening to four lanes. The intersection would improve to LOS D or better after signal improvement.

In addition, it is assumed that the level of intersections and roadway improvements under the Existing plus Approved Projects scenario would be available under this future cumulative base scenario.

**Table 3.14-10: 2040 Cumulative plus Project Intersection LOS**

Intersection		2040PP (No Zach IC)					2040PP (No Zach IC)—Mitigated				
		Future Control	AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Sperry Avenue/I-5 SB Off-Ramps	All-Way	353	F	407	F	Signal	51	D	43	D
2	Sperry Avenue/I-5 NB On-Ramps	One-Way	28	D	306	F	Signal	41	D	16	B
3	Sperry Avenue/Rogers Road	Signal	170	F	175	F	Signal	43	D	53	D
4	Sperry Avenue/Park Center Drive	Signal	22	C	82	F	Signal	20	C	31	C
5	Sperry Avenue/Baldwin Road	Signal	84	F	175	F	Signal	42	D	34	C
6	Sperry Avenue/American Eagle Drive	Signal	21	C	21	C	Signal	21	C	21	C
7	Sperry Avenue/Ward Avenue	Signal	44	D	65	E	Signal	22	C	45	D
8	Sperry Avenue/South Del Puerto Avenue	Signal	11	B	9	A	Signal	11	B	9	A
9	Sperry Avenue/SR-33	Two-Way	29	D	21	D	Signal	29	C	37	D
10	Walnut Avenue/M Street/SR-33	Signal	306	F	213	F	Signal	41	D	18	B
11	SR-33/Las Palmas Avenue	Signal	54	D	43	D	Signal	43	D	40	D
12	Olive Avenue/SR-33	Two-Way	62	F	46	E	Signal	45	D	32	C
13	Park Center/Keystone Pacific Parkway	Two-Way	17	C	210	F	Signal	12	B	17	B
14	Rogers Road/Keystone Pacific Parkway	Two-Way	14	B	21	C	Signal	21	C	20	C
15	Rogers Road/Zacharias Road	Two-Way	51*	F	14	B	Signal	18	B	31	C
16	Baldwin Road/Zacharias Road	All-Way	612	F	859	F	Signal	30	C	55	D
17	Zacharias Road/SR-33	Two-Way	461	F	680	F	Signal	27	C	46	D
18	Ward Avenue/SR-33	One-Way	—	—	—	—	—	—	—	—	—
19	SR-33/Eucalyptus Avenue	One-Way	51*	F	539	F	Signal	16	B	13	B
20	Baldwin Road/SR-33	One-Way	3,262	F	3,301	F	Signal	16	B	13	B
21	Rogers Road/SR-33	One-Way	51*	F	5399	F	Signal	22	C	13	B
22	Sycamore Avenue/Eucalyptus	Two-Way	501	F	9	A	Signal	11	B	27	C
23	Elm Avenue/Eucalyptus Avenue	Two-Way	332	F	26	D	Signal	8	A	9	A
24	Sycamore Avenue/Las Palmas Avenue	Signal	43	D	25	B	Signal	53	D	26	C

Intersection		2040PP (No Zach IC)					2040PP (No Zach IC)—Mitigated				
		Future Control	AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
25	Elm Avenue/Las Palmas Avenue	Signal	20	C	22	C	Signal	20	C	22	C
26	Jennings Road/West Main Avenue	One-Way	457	<b>F</b>	106	<b>F</b>	Signal	18	B	13	B
27	SR-33/New East-West Connection	All-Way	782	<b>F</b>	752	<b>F</b>	Signal	31	C	34	C
28	Ward Avenue/New East-West Connection	All-Way	261	<b>F</b>	401	<b>F</b>	Signal	13	B	17	B
29	SR-33/Grayson Road	All-Way Stop	390	<b>F</b>	1,090	<b>F</b>	Signal	40	D	52	D
30	Marshall Road/Ward Avenue	Two-Way Stop	53	<b>F</b>	16	C	All-Way	17	C	15	C
31	SR-33/Marshall Road	Two-Way Stop	15	B	12	B	Signal	10	B	18	B
32	SR-33/Crows Landing Road/Fink Road	All-Way Stop	768	<b>F</b>	811	<b>F</b>	Signal	29	C	21	C

Notes:  
 \* Computational error due to high traffic demands. Delay cannot be calculated.  
**Bold = Deficient operation**  
 Source: AMG 2020.

**Roadways**

Table 3.14-11 shows the arterial levels of service under 2040 Cumulative plus Project Traffic Condition. Several arterial segments need to be widened to operate acceptably during the AM and PM peak-hours.

**Table 3.14-11: 2040 Cumulative plus Project Traffic Condition Roadway Segment LOS**

Link ID	Roadway	Segment	2040PP								2040PP (Mitigated)							
			Northbound/Eastbound				Southbound/Westbound				Northbound/Eastbound				Southbound/Westbound			
			AM		PM		AM		PM		AM		PM		AM		PM	
			Speed	LOS	Speed	LOS												
A	Sperry Avenue	Rogers Road/Park Center Drive	34.4	B	31.8	B	21.1	D	17.6	E	34.4	B	35.0	B	21.1	D	25.0	C
B	Baldwin Avenue	Sperry Avenue/Keystone Pacific Parkway	31.9	B	32.0	B	19.1	C	10.2	F	31.9	B	32.4	A	19.1	C	16.4	D
C	Ward Avenue	Barch Avenue/Elfers Road	36.4	A	37.1	A	38.1	A	36.2	A	36.4	A	37.1	A	38.1	A	36.2	A
D	West Marshall Road	Ward Avenue/SR-33	36.7	A	35.1	B	34.3	B	36.3	A	36.7	A	35.1	B	34.3	B	36.3	A
E	SR-33	South of Barch Avenue	31.6	B	33.3	B	33.6	B	31.9	B	31.6	B	33.3	B	33.6	B	31.9	B
F	Las Palmas Avenue	Sycamore Avenue/Elm Avenue	31.4	B	28.1	C	33.6	B	36.6	B	31.4	B	28.1	C	33.6	B	36.6	B
G	Las Palmas Avenue	Poplar Avenue/Jennings Road	41.3	A	41.5	A	38.1	B	36.6	B	41.3	A	41.5	A	38.1	B	36.6	B
H	SR-33	Walnut Avenue/Olive Avenue-Ivy Avenue	35.0	B	33.8	B	23.2	C	25.5	C	35.0	B	33.8	B	23.2	C	25.5	C
I	Eucalyptus Avenue	SR-33/Sycamore Avenue	42.6	A	43.7	A	43.5	A	44.2	A	42.6	A	43.7	A	43.5	A	44.2	A
J	Baldwin Road	Zacharias Road/SR-33	44.8	A	44.7	A	43.8	A	41.9	A	44.8	A	44.7	A	43.8	A	41.9	A
K	Zacharias Road	Rogers Road/Baldwin Road	34.0	B	36.1	B	38.4	A	38.0	B	34.0	B	36.1	B	38.4	A	38.0	B
L	Rogers Road	Zacharias Road/SR-33	42.9	A	42.7	A	22.8	A	40.0	A	42.9	A	42.7	A	22.8	A	40.0	A
M	SR-33	Zacharias Road/Baldwin Road	41.3	A	42.0	A	40.6	A	39.5	B	41.3	A	42.0	A	40.6	A	39.5	B
N	SR-33	Grayson Road/Rogers Road	40.9	A	42.6	A	41.3	A	41.2	A	40.9	A	42.6	A	41.3	A	41.2	A
O	SR-33	Crows Landing Road—Fink Road/Marshall Road	44.24	A	45.25	A	45.2	A	43.55	A	44.24	A	45.25	A	45.2	A	43.55	A

*Freeways*

The freeway levels of service under 2040 Cumulative plus Project Traffic Conditions are shown in Table 3.14-12. It is estimated that both freeway segments would operate unacceptably in the commute direction during the peak-hour.

**Table 3.14-12: 2040 Cumulative plus Project Freeway Segment LOS**

Link ID	Freeway Segment	2040PP						
		# Lanes	AM			PM		
			Volume (vph) A	Density (pc/mi/ln)	LOS	Volume (vph)	Density (pc/mi/ln)	LOS
Y	I-5 NB (north of Sperry Ave.)	2	2,142	37.5	<b>E</b>	1,661	25.9	<b>C</b>
	I-5 SB (north of Sperry Ave.)	2	1,921	33.0	D	2,149	41.3	<b>E</b>
Z	I-5 NB (south of Sperry Ave.)	2	2,149	37.7	<b>E</b>	1,556	25.9	<b>C</b>
	I-5 SB (south of Sperry Ave.)	2	1,565	24.2	C	2,051	35.4	<b>E</b>

Notes:  
**Bold** = Deficient operation  
 Source: AMG, 2020.

*Required Improvements*

Based on the results of the projected traffic for the 2040 Cumulative plus Project Traffic Conditions, intersections require all of the improvements identified in Mitigation Measures TRANS-1a through TRANS-1s.

**2040 Cumulative Plus Project – New Zacharias Interchange**

This section presents the assessment of potential transportation impacts of the proposed Project under 2040 Cumulative plus Project assuming a new interchange at I-5/Zacharias Road. The new interchange at I-5/Zacharias was coded as a diamond interchange. Zacharias Road was assumed to be a 4-lane arterial similar to Sperry Avenue.

The Stanislaus Council of Governments is studying the development of a South County Corridor between Interstate 5 near Patterson and SR-99 in Turlock. A Feasibility Study was released in 2016 that considered alignment options and recommended that three of the alternatives be carried forward for further review. Two of those alternatives contemplate an I-5/South County Corridor interchange northwest of the Master Plan area, with the alignment following Zacharias Road to SR-33, where a grade separated interchange would be constructed.

The Master Plan’s circulation plan accommodates these two alignments of the future South County Corridor and limits the number of connections along Zacharias Road. If the South County Corridor is not developed along Zacharias Road, this roadway would still be improved to arterial standards.

It is projected that the new interchange would attract approximately 2,300 vph during the peak-hour. This will provide much relief from traffic congestions along Sperry Avenue and other major roadways in the City.

*Intersections*

This section presents the assessment of potential transportation impacts of the 2040 Cumulative plus Project with proposed Zacharias Road Interchange at I-5. Exhibit 3.14-8 shows 2040 Cumulative plus Project (proposed Zacharias Road Interchange at I-5) Peak Hour Turning Movements and lane geometry. Table 3.14-13 shows the LOS under 2040 Cumulative plus Project Peak Hour Turning Movements. It is assumed that proposed improvements Sperry Avenue and I-5 Interchange would be implemented including signalization and widening to four lanes. The intersection would improve to LOS D or better after signal improvement.

**Table 3.14-13: 2040 Cumulative plus Project Intersection LOS (with new Zacharias Road Interchange at I-5)**

Intersection		2040PP (With Zach IC)					2040PP (With Zach IC)—Mitigated				
		Existing Control	AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
1	Sperry Avenue/I-5 SB Off-Ramps	One-Way Stop	170	F	145	F	Signal	29	C	20	B
2	Sperry Avenue/I-5 NB On-Ramps	One-Way Stop	591	F	377	F	Signal	11	B	12	B
3	Sperry Avenue/Rogers Road	Signal	51	D	55	D	Signal	26	C	32	C
4	Sperry Avenue/Park Center Drive	Signal	15	B	22	C	Signal	13	B	17	B
5	Sperry Avenue/Baldwin Road	Signal	39	D	50	D	Signal	30	C	26	C
6	Sperry Avenue/American Eagle Drive	Signal	18	B	14	B	Signal	18	B	14	B
7	Sperry Avenue/Ward Avenue	Signal	31	C	42	D	Signal	21	C	25	C
8	Sperry Avenue/S Del Puerto Avenue	Signal	9	A	8	A	Signal	9	A	8	A
9	Sperry Avenue/SR-33	Two-Way Stop	3777	F	1424	F	Signal	33	C	37	D
10	Walnut Avenue/M Street/SR-33	Signal	61	E	48	D	Signal	23	C	16	B
11	SR-33/Las Palmas Avenue	Signal	23	C	23	C	Signal	21	C	21	C
12	Olive Avenue/SR-33	Two-Way Stop	26	D	28	D	Signal	18	B	17	B

Intersection		2040PP (With Zach IC)					2040PP (With Zach IC)—Mitigated				
		Existing Control	AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
13	Park Center/Keystone Pacific Parkway	Two-Way Stop	11	B	19	C	Signal	11	B	12	B
14	Rogers Road/Keystone Pacific Parkway	Two-Way Stop	12	B	13	B	Signal	16	B	14	B
15	Rogers Road/Zacharias Road	Two-Way Stop	39	E	200	F	Signal	18	B	21	C
16	Baldwin Road/Zacharias Rd. ad	All-Way	131	F	190	F	Signal	22	C	26	C
17	Zacharias Road/SR-33	Two-Way Stop	326	F	32	D	Signal	14	B	22	C
18	Ward Avenue/SR-33	One-Way Stop	—	—	—	—	—	—	—	—	—
19	SR-33/Eucalyptus Avenue	One-Way Stop	80	F	327	F	Signal	22	C	28	C
20	Baldwin Road/SR-33	One-Way Stop	841	F	121	F	Signal	15	B	8	A
21	Rogers Road/SR-33	One-Way Stop	438	F	89	F	Signal	12	B	10	A
22	Sycamore Avenue/Eucalyptus	Two-Way Stop	715	F	446	F	Signal	19	B	12	B
23	Elm Avenue/Eucalyptus Avenue	Two-Way Stop	34	D	40	E	Two-Way	8	A	10	A
24	Sycamore Avenue/Las Palmas Avenue	Signal	33	C	26	C	Signal	38	D	25	C
25	Elm Avenue/Las Palmas Avenue	Signal	24	C	26	C	Signal	21	C	23	C
26	Jennings Road/West Main Avenue	One-Way Stop	338	F	88	F	Signal	28	C	18	B
27	SR-33/New East-West Connection	All-Way	292	F	334	F	Signal	18	B	20	C
28	Ward Avenue/New East-West Connection	All-Way	261	F	401	F	Signal	13	B	27	C
29	SR-33/Grayson Road	All-Way Stop	556	F	284	F	Signal	28	C	18	B
30	Marshall Road/Ward Avenue	Two-Way Stop	59	F	15	B	All-Way	18	C	14	B
31	SR-33/Marshall Road	Two-Way Stop	11	B	189	F	Signal	20	C	9	A

Transportation

Intersection		Existing Control	2040PP (With Zach IC)				2040PP (With Zach IC)—Mitigated				
			AM		PM		Mitigated Control	AM		PM	
			Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS
32	SR-33/Crows Landing Road/Fink Road	All-Way Stop	391	<b>F</b>	296	<b>F</b>	Signal	19	B	22	C

**Bold** = Deficient level of service  
Source: AMG, 2020.

Roadways

Table 3.14-14 shows the arterial levels of service under 2040 Cumulative plus Project Traffic Conditions (proposed Zacharias Road Interchange at I-5). Several arterial segments need to be widened to operate acceptably during the AM and PM peak-hours.

**Table 3.14-14: 2040 Cumulative plus Project Traffic Condition Roadway Segment LOS (with new Zacharias Road Interchange at I-5)**

Link ID	Roadway	Segment	2040PP-ZacIC								2040PP-ZacIC (Mitigated)							
			Northbound/Eastbound				Southbound/Westbound				Northbound/Eastbound				Southbound/Westbound			
			AM		PM		AM		PM		AM		PM		AM		PM	
			Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
A	Sperry Avenue	Rogers Road/Park Center Drive	34.3	B	24.5	C	25.8	C	19.8	D	34.3	B	24.5	C	25.8	C	19.8	D
B	Baldwin Avenue	Sperry Avenue/Keystone Pacific Parkway	31.0	B	32.2	B	16.2	D	9.8	F	31.0	B	32.4	B	16.2	D	16.3	D
C	Ward Avenue	Barch Avenue/Elfers Road	36.3	A	37.2	A	38.1	A	36.0	A	36.3	A	37.2	A	38.1	A	36.0	A
D	West Marshall Road	Ward Avenue/SR-33	36.7	A	35.5	B	34.4	B	36.3	A	36.7	A	35.5	B	34.4	B	36.3	A
E	SR-33	South of Barch Avenue	31.4	B	33.5	B	33.6	B	31.6	B	31.4	B	33.5	B	33.6	B	31.6	B
F	Las Palmas Avenue	Sycamore Avenue/Elm Avenue	26.6	C	32.6	B	29.4	C	36.3	B	26.6	C	32.6	B	29.4	C	36.3	B
G	Las Palmas Avenue	Poplar Avenue/Jennings Road	41.2	A	40.8	A	37.9	B	35.7	B	41.2	A	40.8	A	37.9	B	35.7	B
H	SR-33	Walnut Avenue/Olive Avenue-Ivy Avenue	35.0	B	32.1	B	23.3	C	25.2	C	35.0	B	32.1	B	23.3	C	25.2	C
I	Eucalyptus Avenue	SR-33/Sycamore Avenue	42.3	B	43.5	A	43.4	A	44.4	A	42.3	B	43.5	A	43.4	A	44.4	A
J	Baldwin Road	Zacharias Road/SR-33	45.2	A	45.3	A	43.2	A	41.4	A	45.2	A	45.3	A	43.2	A	41.4	A
K	Zacharias Road	Rogers Road/Baldwin Road	35.3	B	33.5	B	39.3	B	39.3	B	35.3	B	33.5	B	39.3	B	39.3	B
L	Rogers Road	Zacharias Road/SR-33	40.9	A	42.7	A	33.1	F	41.8	A	40.4	A	42.7	A	39.6	A	41.8	A
M	SR-33	Zacharias Road/Baldwin Road	41.5	A	42.0	A	40.6	A	39.8	A	41.5	A	42.0	A	40.6	A	39.8	A
N	SR-33	Grayson Road/Rogers Road	42.0	A	43.4	A	42.6	A	42.1	A	42.0	A	43.4	A	42.6	A	42.1	A
O	SR-33	Crows Landing Road—Fink Road/Marshall Road	44.2	A	45.3	A	45.2	A	43.9	A	44.2	A	45.3	A	45.2	A	43.9	A

*Freeways*

The freeway levels of service under 2040 Cumulative plus Project Traffic Conditions are shown in Table 3.14-15. It is estimated that the freeway segment south of Sperry Avenue would operate unacceptably during the peak hour.

**Table 3.14-15: 2040 Cumulative plus Project (with new Zacharias Road Interchange at I-5) Freeway Segment LOS**

Link ID	Freeway Segment	2040-ZalcC						
		# Lanes	AM			PM		
			Volume (vph)	Density (pc/mi/ln)	LOS	Volume (vph)	Density (pc/mi/ln)	LOS
Y	I-5 NB (north of Sperry Avenue)	2	1,718	27.0	D	1,475	22.7	C
	I-5 SB (north of Sperry Avenue)	2	1,652	27.6	D	1,647	29.9	D
Z	I-5 NB (south of Sperry Avenue)	2	2,146	37.6	E	1,575	26.3	D
	I-5 SB (south of Sperry Avenue)	2	1,558	24.1	C	2,062	36.7	E

*Required Improvements*

All of the improvements identified in Mitigation Measures TRANS-1a through TRANS-1z would be required under the 2040 New Zacharias Interchange scenario.

**Transportation Demand Management**

Transportation Demand Management is a general term for various strategies that increase transportation system efficiency. TDM treats mobility as a means to an end, rather than an end in itself, and so helps individuals and communities meet their transport needs in the most efficient way, which often reduces total vehicle traffic.

Recommended TDM strategies should encourage future property owners, developers, and employers to use creative and effective ways to reduce motor vehicle trips and their associated impacts. TDM strategies should ensure that new developments are designed to make non-single occupant vehicle (SOV) travel easier for new residents, tenants, employees, and visitors by using sustainable travel modes such as carpooling, vanpooling, carsharing, transit, walking, biking, and teleworking. TDM encourages developers, businesses, property owners, homeowners’ associations, public agencies and institutions to provide information, incentives, advocacy, and specific services for enhanced transportation options.

TDM for the proposed project could establish the following goals:

- Reduce the frequency and distance of auto trips

- Shift trips towards the use of environmentally friendly and non-motorized modes of transportation
- Partner with project developers and communities to reduce SOV trips
- Increase the accessibility and convenience of alternatives to driving-alone
- Increase awareness of all transportation choices and costs
- Encourage use of innovative programs and new technologies to reduce driving alone

There are many different TDM strategies with a variety of transportation impacts. Some improve the transportation options available to consumers. Some cause changes in trip scheduling, route, destination or mode. Others reduce the need for physical travel through more efficient land use, or transportation substitutes. TDM is an increasingly common response to transportation problems especially considering SB 743 VMT legislation. Although most individual TDM strategies only affect a small portion of total travel, the cumulative impacts of a comprehensive TDM program can be significant.

TDM programs have been around as major components of urban transportation systems since the 1970s and a significant body of knowledge has been built over this time. In practice, TDM programs range from light-duty marketing campaigns that accomplish little to robust, integrated systems that have measurable impacts on traffic volumes in specific corridors or districts.

Individual businesses can implement and support TDM strategies in their roles as employers, developers, building operators and service providers. In these roles, businesses often make decisions that affect whether TDM strategies are considered at all, how TDM solutions are evaluated and compared with alternatives, and the quality with which TDM strategies are implemented.

Demand management can benefit businesses directly. For example, parking management can reduce costs and increase flexibility for employers and developers. Commute Trip Reduction strategies, such as Parking Cash Out and Guaranteed Ride Home programs, can help with employee recruitment and retentions. TDM can improve public relations by reducing congestion and pollution problems.

#### *Best TDM Strategies*

Appropriate TDM measures would be different for residential and non-residential projects. The following strategies are particularly suitable for implementation by businesses and residences which the proposed project could consider.

#### **Alternative Work Schedules**

Alternative work schedules include flextime, Compressed Work Week (CWW), and staggered shifts. They can reduce peak period commute travel and help accommodate ridesharing and transit use.

#### **Bicycle/Pedestrian Facilities**

Measures promoting the use of bicycles and walking as alternative modes of transportation will include the following key elements:

- A clearly designated pedestrian circulation network within the site that links to the City of Patterson roadway network. Currently there are Class II on-street bike lane on Baldwin Road

and Ward Avenue. Class II bike lane should be provided on both streets in the project area. The existing site plan shows pedestrian routes that connect to adjacent local roadways. Clearly designated bike lanes should be provided that connects to employment centers and downtown areas.

- Secure bicycle parking in safe, strategic locations within the site.
- Safety amenities such as lighting, sidewalks, and off-street pedestrian / bicycle paths.

#### **Guaranteed Ride Home**

Guaranteed Ride Home (GRH) programs provide an occasional subsidized ride to commuters who use alternative modes, to help deal with unexpected conditions.

#### **Transit, Shuttles, and Ridesharing**

Ridesharing is being embraced by a wider group of people than ever before. This provide much opportunity to reduce SOV and promote TDM. The emerging choices of transportation management options, as well as major industry players like Uber, Via, Sidecar and Lyft, reflect a cultural trend that's defining contemporary times: the desire for choice. The following should be actively promoted.

- Carpool or vanpool program
- Commute assistance and ride-matching
- Shuttle program / shuttle consortium / fund transit service
- Transit passes or subsidies
- Car share on-site
- Self-Driving shuttle

Self-driving shuttle between residential and employment centers are currently being considered or used in many cities. This might be a feasible strategy in trip reduction if it is implemented between large employment centers and new homes in the future Zacharias and Baldwin Master Plans.

#### **Transportation Management Associations**

Businesses can help create Transportation Management Associations (TMAs), which are member-controlled, organizations that provide transportation services in a particular area. Depending on the circumstances, some TMAs have been proven to be critical for the long-term success of a TDM program.

- TDM Coordinator / Contact Person
- Actively participate in a Transportation Management Association
- Developer TDM Fee/ TDM Fund

#### **Telework**

Telework involves the use of telecommunications to substitute for physical travel, including telecommuting, teleshopping, distance-learning, electronic government, video conferencing, and Internet-based business-to-business activities.

### *Implementation*

One of the keys to successful TDM programs is understanding how to manage the scale of TDM programs and how to work within a complex urban environment with multiple agencies and organizations interacting, sometimes with competing goals.

Different TDM measures are appropriate for implementation by different entities at different scales. There is little a single employer can do to improve regional public transit service, for example. Regional transit agencies with regional tax bases provide transit service and they typically participate in ancillary programs designed to promote transit patronage, including setting up pass programs. Cities within those transit regions may be represented on the transit board and can influence transit decision making. In some cases, cities may operate local circulators and shuttles as adjuncts to the regional transit system. Groups of employers, operating through a TMA can implement an employee transit pass program, sharing costs and creating an efficient marketing effort with an information clearinghouse. They can work with the transit agency and city to obtain better service or improved transit stops near their worksites, or to run a local circulator. In many cases, Caltrans or StanCOG may have funds available to help start up TMAs and to support their efforts. In fact, many metropolitan areas have a regional commute trip reduction program designed to provide services and resources to TMAs.

The TDM Program should include a marketing program to make future employees aware of the available commute options and services provided by local transit agencies and each employer, and to encourage employees to use commute alternatives. The marketing and promotion effort will include distribution of information on available commute services, assistance with commute planning, and other services that make the use of commute alternatives more convenient.

The provision of a transportation network that facilitates bicycle and walking modes will also influence an employee's decision to use a commute mode alternative to the automobile. The project site plan incorporates specifications for sidewalks that will enhance the pedestrian environment.

Mitigation Measures TRANS-2a and TRANS-2b require the implementation of TDM measures for both the Zacharias Master Plan and Baldwin Master Plan as they buildout.

### **Conclusion**

Buildout of the Master Plans would contribute new trips to intersections, roadways, and freeways forecast to operate at unacceptable levels. Twenty-two feasible mitigation measures are proposed to reduce project impacts. However, for certain facilities, the improvements would not restore operations to acceptable levels. In addition, mitigation measures are proposed for facilities that are outside the jurisdiction of the City of Patterson and, therefore, uncertainty exists regarding their implementation. For these reasons, the impact is significant and unavoidable.

### **Level of Significance Before Mitigation**

Potentially significant impact.

### **Mitigation Measures**

Implement Mitigation Measures TRANS-1a through TRANS-1z and:

**MM TRANS-2a** Prior to the approval of each map for the Zacharias Master Plan and Baldwin Master Plan, the applicant shall prepare plans for review and approval by the City of Patterson that identify the following applicable Transportation Demand Management Measures

- A clearly designated pedestrian circulation network within the site that links to the City of Patterson roadway network.
- Secure bicycle parking in safe, strategic locations within the site.
- Safety amenities such as lighting, sidewalks, and off-street pedestrian / bicycle paths.

**MM TRANS-2a** Prior to the final approval for individual development projects that would employ more than 50 people that occur pursuant to the Zacharias Master Plan, the applicant shall retain a qualified transportation consultant to prepare a project-specific Transportation Demand Management Plan that includes the following applicable measures:

- Transit, bicycle, and pedestrian facilities
- Alternative work schedules
- Guaranteed ride home
- Carpool or vanpool program
- Commute assistance and ride-matching
- Shuttle program / shuttle consortium / fund transit service
- Transit passes or subsidies
- Car share on-site
- Self-Driving shuttle
- Transportation Management Associations
- Telework

### **Level of Significance After Mitigation**

Significant unavoidable impact.

### **Vehicle Miles Traveled**

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**Impact TRANS-3: Buildout of the Master Plans may conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).**

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### **Impact Analysis**

This impact evaluates vehicle miles traveled. Because no thresholds have been adopted by a State or regional agency at the time of Draft EIR release, the City of Patterson, as the lead agency has elected to conduct a qualitative analysis.

*Baldwin Master Plan / Zacharias Master Plan*

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.7 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

Buildout of the proposed Master Plans would generate an estimated 233,894,978 vehicle miles traveled on an annual basis. Both Master Plans contemplate residential communities within proximity to employment, retail, services, schools, and parks. In addition, the Master Plans contemplate a multi-modal transportation network consisting of roadways, on-street and off-street bicycle facilities, and pedestrian facilities. Collectively, these attributes create opportunities short vehicle trips and non-motorized trips.

Moreover, buildout of the Master Plans would promote improving jobs-housing balance in Patterson. As of July 2020, the California Department of Finance indicates that Patterson has 23,764 residents and the California Employment Development Department indicates it has 9,400 jobs. Expressed as a ratio, this yields 2.52 residents / job. As such, Patterson is considered housing rich.

The Zacharias Master Plan contemplates 7.765 million square feet of non-residential uses, primarily light industrial. At buildout, the Baldwin and Zacharias Master Plans would add 19,988 residents and 8,670 new jobs. Additionally, buildout of the nearby Arambel Business Park would add an estimated 10,093 jobs to Patterson, bringing total future employment of 18,763. As a ratio, the Master Plans plus Arambel yield 1.07 residents / job.

When added to the existing values, this yields citywide numbers of 43,752 residents and 28,163 jobs. As a ratio, it yields 1.55 residents / job. As such, it provides context regarding how the Master Plans – the combined biggest development project in City history – affects jobs-housing balance.

Overall, this demonstrates that the Master Plans would move Patterson substantially closer to a jobs-housing balance. Furthermore, the new employment opportunities would be located within 2 miles of most of the proposed Mater Plan residential uses, close enough to enable workers who live in Patterson to consider alternate modes of transportation. To facilitate this, Mitigation Measures TRANS-2a and TRANS-2b require the implementation TDM measures at both the design and operational levels.

In sum, buildout of the Master Plans would advance State objectives regarding reducing VMT. Impacts would be less than significant.

***Level of Significance Before Mitigation***

Potentially significant impact.

***Mitigation Measures***

Implement Mitigation Measures TRANS-2a and TRANS-2b.

***Level of Significance After Mitigation***

Less than significant impact.

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## Roadway Safety

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**Impact TRANS-4: Buildout of the Master Plans may substantially increase hazards due to a geometric design feature or incompatible uses.**

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### ***Impact Analysis***

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.765 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

### ***Baldwin Master Plan Area***

The Baldwin Master Plan area abuts agricultural uses to the east and south. Baldwin Road would be extended south to serve the Master Plan uses. It would be expected that agricultural equipment would travel along this new segment of Baldwin Road. The roadway is contemplated to provide a shoulder, which would slow moving agricultural equipment to safely traverse this roadway.

### ***Zacharias Master Plan Area***

#### ***Agricultural Equipment***

The Zacharias Master Plan area abuts agricultural uses to the west, north, and east. In addition, the Ranchette Triangle contains existing agricultural uses that may continue their existing land use activities as the balance of the Master Plan area builds out.

Zacharias Road between Rogers Road and SR-33 would be improved to provide a shoulder, which would slow moving agricultural equipment to safely traverse this roadway.

Additionally, no changes are proposed to Ivy Avenue or Rose Avenue within the Ranchette Triangle. To the extent that agricultural equipment uses these roads, this would not be affected by the Master Plan.

### ***Railroad Grade Crossings***

There are two active railroad grade crossings near the Zacharias Master Plan boundaries.

The SR-33 grade crossing provides cross bucks, flashers, gates, and a concrete panel roadbed, which is an appropriate level of protection.

The Zacharias Road grade crossing provides only cross bucks. Ultimately, the planned South County Corridor contemplates a grade separated crossing at this location. However, there is a possibility that some or all of the Zacharias Master Plan may buildout prior to this facility being constructed, creating a scenario that the Zacharias Road grade crossing would experience a substantial increase in daily crossings. Accordingly, Mitigation Measure TRANS-1m requires the applicant to upgrade the safety devices at the Zacharias Road grade crossings in conjunction with the intersection improvements at SR-33 / Zacharias Road.

### ***Level of Significance Before Mitigation***

Potentially significant impact.

### **Mitigation Measures**

Implement Mitigation Measure TRANS-1m.

Level of Significance After Mitigation

Less than significant impact.

### **Emergency Access**

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**Impact TRANS-5: Buildout of the Master Plans would not result in inadequate emergency access.**

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### **Impact Analysis**

The proposed Master Plans contemplate the development of up to 5,086 dwelling units, 7.765 million square feet of non-residential uses, two schools, parks, a trail network, and flood control basin.

### **Baldwin Master Plan Area**

The Baldwin Master Plan contemplates a looped internal circulation network that would connect to existing segments of Baldwin Road and the City of Patterson Corporation Yard access road. Thus, two points of connection would be provided. Moreover, the Master Plan incorporates the General Plan Circulation Element's roadway sections and, thus, the internal roadways would meet City standards for access and circulation. As such, adequate emergency response and evacuation would be provided.

### **Zacharias Master Plan Area**

The Zacharias Master Plan contemplates an internal circulation network with multiple connections to existing segments of Rogers Road, Zacharias Road, Baldwin Road, and Ward Avenue. The Zacharias Master Plan also contemplates an East-West Connector that would link the Master Plan area to State Route 33. Additionally, two Emergency Vehicle Access (EVA) points would be provided at the existing Ivy Avenue and Rose Avenue cul-de-sacs. Moreover, the Master Plan incorporates the General Plan Circulation Element's roadway sections and, thus, the internal roadways would meet City standards for access and circulation. As such, adequate emergency response and evacuation would be provided.

### **Level of Significance Before Mitigation**

Less than significant impact.

### **Mitigation Measures**

No mitigation is necessary.

### **Level of Significance After Mitigation**

Less than significant impact.

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Source: Advanced Mobility Group, November 20, 2020.

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Intersection #1 Sperry/I-5 SB Ramps	Intersection #2 Sperry/I-5 NB Ramps	Intersection #3 Sperry/Rogers	Intersection #4 Sperry/Park Center Dr.	Intersection #5 Sperry/Baldwin	Intersection #6 Sperry/American Eagle

**LEGEND**

- Stop Sign
- Traffic Signal
- XX AM Peak Hour Volume
- (XX) PM Peak Hour Volume

Note: Int #27 & 28 do not exist under Existing Conditions

Source: Advanced Mobility Group, November 20, 2020.

Exhibit 3.14-2



Existing Peak Hour Turning Movement Volumes,  
Land Geometry & Controls

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<p><b>Intersection #1</b> Sperry/I-5 SB Ramps</p>	<p><b>Intersection #2</b> Sperry/I-5 NB Ramps</p>	<p><b>Intersection #3</b> Sperry/Rogers</p>	<p><b>Intersection #4</b> Sperry/Park Center Dr.</p>	<p><b>Intersection #5</b> Sperry/Baldwin</p>	<p><b>Intersection #6</b> Sperry/American Eagle</p>
<p><b>Intersection #7</b> Sperry/Ward</p>	<p><b>Intersection #8</b> Sperry/S. Del Puerto</p>	<p><b>Intersection #9</b> Sperry/SR 33</p>	<p><b>Intersection #10</b> Walnut/M St./SR 33</p>	<p><b>Intersection #11</b> SR 33/Las Palmas</p>	<p><b>Intersection #12</b> SR 33/Olive</p>
<p><b>Intersection #13</b> Park Center/Keystone Pacific</p>	<p><b>Intersection #14</b> Rogers/Keystone Pacific</p>	<p><b>Intersection #15</b> Rogers/Zacharias</p>	<p><b>Intersection #16</b> Baldwin/Zacharias</p>	<p><b>Intersection #17</b> Zacharias/SR 33</p>	<p><b>Intersection #18</b> SR 33/Ward</p> <p>Does Not Exist</p>
<p><b>Intersection #19</b> SR 33/Eucalyptus</p>	<p><b>Intersection #20</b> Baldwin/SR 33</p>	<p><b>Intersection #21</b> Rogers/SR 33</p>	<p><b>Intersection #22</b> Sycamore/Eucalyptus</p>	<p><b>Intersection #23</b> Elm/Eucalyptus</p>	<p><b>Intersection #24</b> Sycamore/E. Las Palmas</p>
<p><b>Intersection #25</b> Elm/Las Palmas</p>	<p><b>Intersection #26</b> Jennings/Main</p>	<p><b>Intersection #27</b> SR33/New Connection</p>	<p><b>Intersection #28</b> Ward/New Connection</p>	<p><b>Intersection #29</b> SR 33/Grayson Rd</p>	<p><b>Intersection #30</b> Ward Ave/Marshall Rd</p>
<p><b>Intersection #31</b> SR 33/Marshall Rd</p>	<p><b>Intersection #32</b> SR 33/Crows Landing Rd</p>				

LEGEND	
	Stop Sign
	Traffic Signal
	Recommended Mitigated Traffic Signal
	Recommended Mitigated Lane
XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume

Source: Advanced Mobility Group, November 20, 2020.

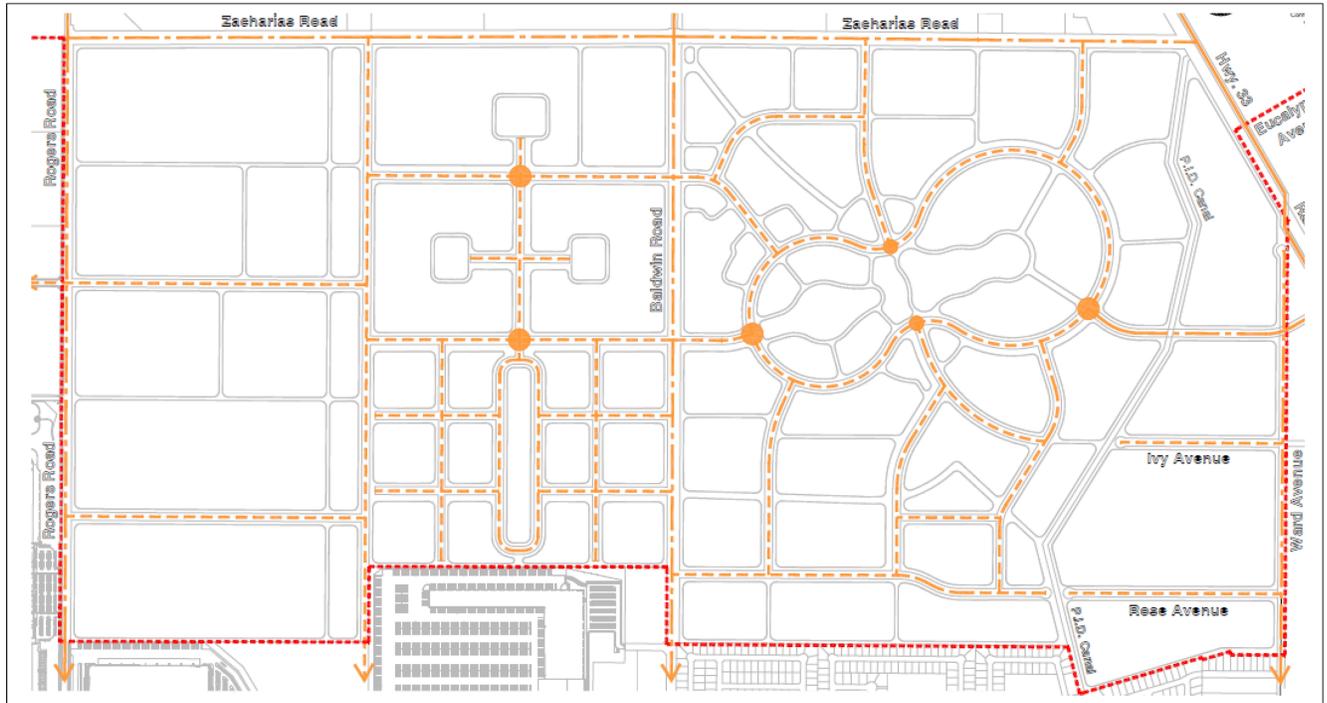
Exhibit 3.14-3



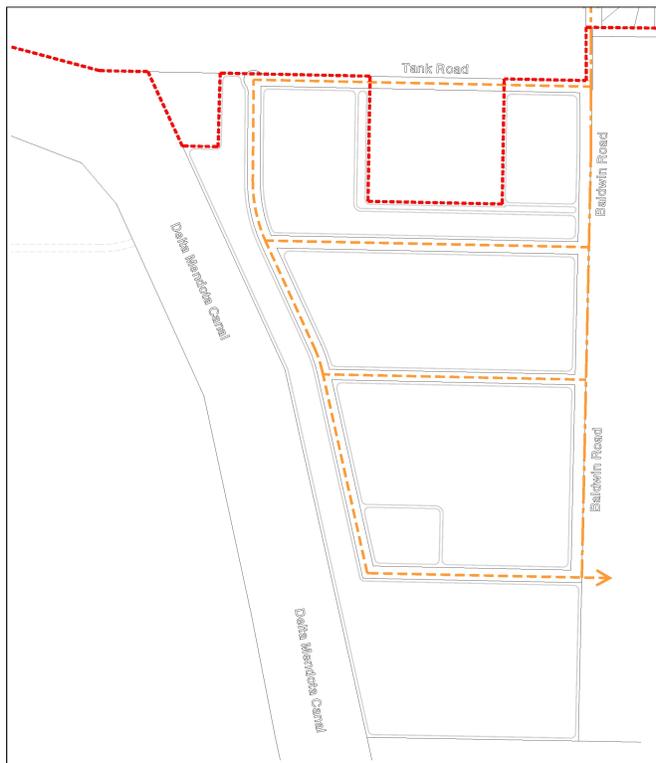
Existing Plus Approved Project Peak Hour Turning Movement Volumes, Lane Geometry & Controls

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## Zacharias Master Plan



## Baldwin Master Plan



Source: Advanced Mobility Group, November 20, 2020.



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Intersection #1 Sperry/I-5 SB Ramps	Intersection #2 Sperry/I-5 NB Ramps	Intersection #3 Sperry/Rogers	Intersection #4 Sperry/Park Center Dr.	Intersection #5 Sperry/Baldwin	Intersection #6 Sperry/American Eagle
					Does Not Exist
<b>LEGEND</b> Stop Sign Traffic Signal Recommended Mitigated Traffic Signal Recommended Mitigated Lane XX AM Peak Hour Volume (XX) PM Peak Hour Volume					

Source: Advanced Mobility Group, November 20, 2020.

Exhibit 3.14-5



Existing Plus Approved Plus Project Peak Hour Turning Movement Volumes, Lane Geometry & Controls

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<b>Intersection #1</b> Sperry/I-5 SB Ramps 	<b>Intersection #2</b> Sperry/I-5 NB Ramps 	<b>Intersection #3</b> Sperry/Rogers 	<b>Intersection #4</b> Sperry/Park Center Dr. 	<b>Intersection #5</b> Sperry/Baldwin 	<b>Intersection #6</b> Sperry/American Eagle 
<b>Intersection #7</b> Sperry/Ward 	<b>Intersection #8</b> Sperry/S. Del Puerto 	<b>Intersection #9</b> Sperry/SR 33 	<b>Intersection #10</b> Walnut/M St./SR 33 	<b>Intersection #11</b> SR 33/Las Palmas 	<b>Intersection #12</b> SR 33/Olive 
<b>Intersection #13</b> Park Center/Keystone Pacific 	<b>Intersection #14</b> Rogers/Keystone Pacific 	<b>Intersection #15</b> Rogers/Zacharias 	<b>Intersection #16</b> Baldwin/Zacharias 	<b>Intersection #17</b> Zacharias/SR 33 	<b>Intersection #18</b> Ward/SR 33 
<b>Intersection #19</b> SR 33/Eucalyptus 	<b>Intersection #20</b> Baldwin/SR 33 	<b>Intersection #21</b> Rogers/SR 33 	<b>Intersection #22</b> Sycamore/Eucalyptus 	<b>Intersection #23</b> Elm/Eucalyptus 	<b>Intersection #24</b> Sycamore/E. Las Palmas 
<b>Intersection #25</b> Elm/Las Palmas 	<b>Intersection #26</b> Jennings/Main 	<b>Intersection #29</b> SR 33/Grayson Rd 	<b>Intersection #30</b> Ward Ave/Marshall Rd 	<b>Intersection #31</b> SR 33/Marshall Rd 	<b>Intersection #32</b> SR 33/Crows Landing Rd 

LEGEND	
	Stop Sign
	Traffic Signal
	Recommended Mitigated Traffic Signal
	Recommended Mitigated Lane
XX	AM Peak Hour Volume
(XX)	PM Peak Hour Volume

Note: Int #27 & 28 do not exist under no project conditions.

Source: Advanced Mobility Group, November 20, 2020.

Exhibit 3.14-6

FIRSTCARBON SOLUTIONS™



2040 Cumulative No Project Peak Hour  
 Turning Movement Volumes, Lane Geometry & Controls

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<p><b>Intersection #1</b> Sperry/I-5 SB Ramps</p>	<p><b>Intersection #2</b> Sperry/I-5 NB Ramps</p>	<p><b>Intersection #3</b> Sperry/Rogers</p>	<p><b>Intersection #4</b> Sperry/Park Center Dr.</p>	<p><b>Intersection #5</b> Sperry/Baldwin</p>	<p><b>Intersection #6</b> Sperry/American Eagle</p>
<p><b>Intersection #7</b> Sperry/Ward</p>	<p><b>Intersection #8</b> Sperry/S. Del Puerto</p>	<p><b>Intersection #9</b> Sperry/SR 33</p>	<p><b>Intersection #10</b> Walnut/M St./SR 33</p>	<p><b>Intersection #11</b> SR 33/Las Palmas</p>	<p><b>Intersection #12</b> SR 33/Olive</p>
<p><b>Intersection #13</b> Park Center/Keystone Pacific</p>	<p><b>Intersection #14</b> Rogers/Keystone Pacific</p>	<p><b>Intersection #15</b> Rogers/Zacharias</p>	<p><b>Intersection #16</b> Baldwin/Zacharias</p>	<p><b>Intersection #17</b> Zacharias/SR 33</p>	<p>Does Not Exist Under Cumulative Plus Project Conditions</p>
<p><b>Intersection #19</b> SR 33/Eucalyptus</p>	<p><b>Intersection #20</b> Baldwin/SR 33</p>	<p><b>Intersection #21</b> Rogers/SR 33</p>	<p><b>Intersection #22</b> Sycamore/Eucalyptus</p>	<p><b>Intersection #23</b> Elm/Eucalyptus</p>	<p><b>Intersection #24</b> Sycamore/E. Las Palmas</p>
<p><b>Intersection #25</b> Elm/Las Palmas</p>	<p><b>Intersection #26</b> Jennings/Main</p>	<p><b>Intersection #27</b> SR33/New Connection</p>	<p><b>Intersection #28</b> Ward/New Connection</p>	<p><b>Intersection #29</b> SR 33/Grayson Rd</p>	<p><b>Intersection #30</b> Ward Ave/Marshall Rd</p>
<p><b>Intersection #31</b> SR 33/Marshall Rd</p>	<p><b>Intersection #32</b> SR 33/Crows Landing Rd</p>				
<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li>⊕ Stop Sign</li> <li>⊙ Traffic Signal</li> <li>⊙ Recommended Mitigated Traffic Signal</li> <li>⊙ Recommended Mitigated Lane</li> <li>XX AM Peak Hour Volume</li> <li>(XX) PM Peak Hour Volume</li> </ul>					

Source: Advanced Mobility Group, November 20, 2020.

Exhibit 3.14-7



## 2040 Cumulative Plus Project Peak Hour Turning Movement Volumes, Lane Geometry & Controls

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<p><b>Intersection #1</b> Sperry/I-5 SB Ramps</p>	<p><b>Intersection #2</b> Sperry/I-5 NB Ramps</p>	<p><b>Intersection #3</b> Sperry/Rogers</p>	<p><b>Intersection #4</b> Sperry/Park Center Dr.</p>	<p><b>Intersection #5</b> Sperry/Baldwin</p>	<p><b>Intersection #6</b> Sperry/American Eagle</p>
<p><b>Intersection #7</b> Sperry/Ward</p>	<p><b>Intersection #8</b> Sperry/S. Del Puerto</p>	<p><b>Intersection #9</b> Sperry/SR 33</p>	<p><b>Intersection #10</b> Walnut/M St./SR 33</p>	<p><b>Intersection #11</b> SR 33/Las Palmas</p>	<p><b>Intersection #12</b> SR 33/Olive</p>
<p><b>Intersection #13</b> Park Center/Keystone Pacific</p>	<p><b>Intersection #14</b> Rogers/Keystone Pacific</p>	<p><b>Intersection #15</b> Rogers/Zacharias</p>	<p><b>Intersection #16</b> Baldwin/Zacharias</p>	<p><b>Intersection #17</b> Zacharias/SR 33</p>	<p><b>Intersection #18</b> SR 33/Ward</p> <p>Does Not Exist</p>
<p><b>Intersection #19</b> SR 33/Eucalyptus</p>	<p><b>Intersection #20</b> Baldwin/SR 33</p>	<p><b>Intersection #21</b> Rogers/SR 33</p>	<p><b>Intersection #22</b> Sycamore/Eucalyptus</p>	<p><b>Intersection #23</b> Elm/Eucalyptus</p>	<p><b>Intersection #24</b> Sycamore/E. Las Palmas</p>
<p><b>Intersection #25</b> Elm/Las Palmas</p>	<p><b>Intersection #26</b> Jennings/Main</p>	<p><b>Intersection #27</b> SR33/New Connection</p>	<p><b>Intersection #28</b> Ward/New Connection</p>	<p><b>Intersection #29</b> SR 33/Grayson Rd</p>	<p><b>Intersection #30</b> Ward Ave/Marshall Rd</p>
<p><b>Intersection #31</b> SR 33/Marshall Rd</p>	<p><b>Intersection #32</b> SR 33/Crows Landing Rd</p>				
<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li>⊙ Stop Sign</li> <li>⊙ Traffic Signal</li> <li>⊙ Recommended Mitigated Traffic Signal</li> <li>⊙ Recommended Mitigated Lane</li> <li>XX AM Peak Hour Volume</li> <li>(XX) PM Peak Hour Volume</li> </ul>					

Source: Advanced Mobility Group, November 20, 2020.

Exhibit 3.14-8

**FIRSTCARBON**  
SOLUTIONS™



2040 Cumulative Plus Project (With New Zacharias Rd Interchange at I-5)  
Peak Hour Turning Movement Volumes, Lane Geometry & Controls

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## 3.15 - Utilities and Service Systems

### 3.15.1 - Introduction

This section describes the existing utilities and service system setting and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on the Water Supply Assessment prepared by Woodard & Curran, which is provided in Appendix I.

#### **Water**

The City of Patterson Public Works Department Water Division oversees municipal potable water supply and delivery.

##### *Supply*

The City of Patterson derives all of its water supply from groundwater pumping of the Delta-Mendota Groundwater Subbasin. The Subbasin is split into two aquifers: an upper (non-potable) and a lower (potable). The two aquifers are separated by the thick, semi-impermeable Corcoran Clay layer. The City operates 10 wells, 8 potable and 2 non-potable, that pump from both aquifers.

#### **Wastewater**

The City of Patterson Public Works Department Wastewater Division of the Patterson Public Works Department provides wastewater transmission, treatment, and disposal for both the City of Patterson and Diablo Grande, a small community located 6 miles to the west. A network of sanitary sewer collection pipelines, approximately 63.4 miles in length and ranging in diameter from 6 to 33 inches, collects wastewater throughout the City. The main trunk pipeline is located beneath Walnut Avenue. Two lift stations assist in the conveyance of wastewater to the Water Quality Control Facility. The Water Quality Control Facility, which occupies approximately 240 acres, is located at 14901 Poplar Avenue, and is permitted to treat 2.25 million gallons of effluent per day. The facility treats an average of 1.65 million gallons of effluent on a daily basis. Treated effluent is disposed of via the Advanced Integrated Pond System.

The City of Patterson has prepared improvement plans and acquired land for the expansion of the facility. The plans call for expanding the facility's treatment capacity to 3.50 million gallons per day (mgd). The City completed environmental review of the expansion pursuant to the California Environmental Quality Act (CEQA).

#### **Storm Drainage**

The developed areas of the City of Patterson are served by a municipal storm drain system. On the west side of the City, the storm drain system discharges runoff into Salado Creek.

In the project vicinity, limited storm drainage facilities exist (roadside ditches, swales, etc.), reflecting the current agricultural uses of the Master Plan areas. The Master Plan areas are not currently served by the City's municipal storm drainage system.

## Solid Waste

Bertolotti Disposal provides franchise solid waste collection within the City of Patterson. Solid waste is disposed of at the Fink Road Landfill in Crows Landing. The landfill’s characteristics are summarized in Table 3.15-1. As shown in the table, the Fink Road Landfill has approximately 7.1 million cubic yards of remaining capacity.

**Table 3.15-1: Fink Road Landfill Summary**

Location	Acreage	Permitted Capacity	Remaining Capacity	Maximum Daily Throughput
4000 Fink Road, Crows Landing, CA	202.5 acres	14,640,000 cubic yards	7,184,701 cubic yards	2,400 tons

Source: California Department of Resources Recycling and Recovery, 2020.

### 3.15.2 - Regulatory Framework

#### State

##### **California Water Code Section 10912**

Passed into law in 2001, Senate Bill (SB) 221 (and its companion SB 610) was intended to address the sufficiency of water supply sources for future developments. Both Bills require preparation of an WSA for approval of a project subject to CEQA and meeting the description of a “project” as defined in the California Water Code Section 10912. A project is defined in the California Water Code (CWC) as any proposed development of more than 500 dwelling units or industrial uses of more than 650,000 square feet. Additionally, for a water utility with fewer than 5,000 connections, any development requiring an increase in the number of connections by more than 10 percent must also comply with this portion of the CWC.

The primary difference between SB 610 and SB 221 is that the Verification of Water Supply for SB 221 must also consider: (1) a historical record of at least 20 years, (2) an urban water shortage contingency analysis, (3) supply reduction for “specific water use sector” per Water Supplier’s resolution, ordinance, or contract and (4) the amount of water that can be reasonably relied upon from specified supply projects. It is intended as a ‘fail safe’ mechanism to ensure that collaboration on finding needed water supplies occurs before construction on a new large subdivision begins. However, both SB 610 and SB 221 include the following requirements:

- Documentation of wholesale water suppliers.
- Documentation of supply sources, including quantities received and expected.
- If groundwater is a source, this must also include a description of the groundwater basin from which the proposed project will be supplied, including information regarding overdraft conditions.
- Discussion of existing and expected water demands.

- Discussion of whether the water provider’s total projected water supplies available during normal, single dry, and multiple dry years will satisfy demands during a 20-year projection.
- A project-specific assessment of the demands associated with the proposed project and a discussion of the water provider’s ability to meet those demands during a 20-year projection.

### **City of Patterson**

#### *General Plan*

The City of Patterson General Plan sets forth the following goals and policies relevant to utilities and service systems:

- **Goal PS-1:** To maintain an adequate level of service in the City’s water system to meet the needs of existing and future development.
- **Policy PS-1.3:** Supply for new development. The City shall not approve any new development without the demonstrated assurance of an adequate water supply to support such development that meets City criteria for both potable and non-potable demands, and a City-approved funding mechanism to pay for necessary improvements. Such assurance shall be provided in a form and manner determined by the City, and may include, but is not limited to, the following:
  - a. A contract between the property owner(s) and a water purveyor guaranteeing the long-term delivery of a suitable quantity of water to serve the intended use of the property consistent with the General Plan;
  - b. A contract between a water purveyor and the City guaranteeing the long-term delivery of a suitable quantity of water to serve the intended use of the property consistent with the General Plan;
  - c. Such other mechanism suitable to the City.
- **Goal PS-2:** To maintain an adequate level of service in the City’s wastewater collection and disposal system to meet the needs of existing and future development.
- **Policy PS-2.2:** Provision of sewer service. The City shall ensure the provision of adequate sewer service to all new development in the city and support the extension of sewer service to existing developed areas where this service is lacking.
- **Goal PS-3:** To maintain an adequate level of service in the City’s storm drainage system to accommodate runoff from existing and future development and to prevent property damage due to flooding.
- **Policy PS-3.2:** Expansion of drainage systems. The City shall expand and develop storm drainage facilities to accommodate the needs of existing and planned development.
- **Policy PS-3.5:** Pollutant requirements. Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.
- **Policy PS-3.6:** National Flood Insurance Program. The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall ensure that its regulations are in full compliance with standards adopted by the Federal Emergency Management Agency.

- **Policy PS-3.10:** Storm drainage improvements required. Construction of storm drainage improvements shall be required, as appropriate, to prevent flooding during periods of heavy rainfall. Where feasible, storm drainage facilities should continue to be combined with park facilities.
- **Policy PS-3.14:** Erosion control. The City shall require new development to incorporate erosion control measures to minimize sedimentation of streams and other natural drainage features.
- **Policy PS-3.15:** Groundwater recharge. Where feasible, storm drainage facilities shall be designed to assist with, and complement, the water supply program in regard to groundwater recharge.
- **Goal PS-4:** To provide for the efficient collection and disposal of solid waste while minimizing impacts to the physical and social environment.

#### *Construction and Demolition Debris Recycling Ordinance*

Patterson Municipal Code Chapter 6.14 requires all construction and renovation to implement construction and demolition debris recycling. Applicants are required to submit a waste management plan as part of the building permit application describing how construction and demolition debris recycling would be carried out. City official review and approve the plan and the applicant is legally bound to implement it.

### **3.15.3 - Methodology**

The water analysis is based on a Water Supply Assessment prepared by Woodard & Curran, which is provided in Appendix I. FCS prepared the wastewater, storm drainage, and solid waste analysis using information provided by the Master Plans, the City of Patterson, and the California Department of Resources Recovery and Recycling.

### **3.15.4 - Thresholds of Significance**

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to utilities and service systems are significant environmental effects, the following questions are analyzed and evaluated.

Would the project:

- a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
- b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?
- c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

- d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
- e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

### 3.15.5 - Project Impacts and Mitigation Measures

#### Water Supply

**Impact US-1: Buildout of the Master Plans would not require additional water supplies to provide adequate water supply during normal, dry and multiple dry years.**

#### Impact Analysis

This impact assesses the adequacy of water supply under buildout of the Baldwin and Zacharias Master Plans. The analysis in this impact is based on the Water Supply Assessment prepared by Woodard & Curran.

#### Baldwin and Zacharias Master Plans

##### Potable Water Infrastructure

The City of Patterson would provide potable water service to the Master Plan areas. Additionally, property owners would be required to use non-potable groundwater for irrigation purposes. Exhibit 2-11a depicts the Zacharias Master Plan potable water system and 2-11b depicts the Baldwin Master Plan potable water system.

##### Non-Potable Water Infrastructure

The City of Patterson would provide non-potable water service to the Zacharias Master Plan area. Exhibit 2-12 depicts the Zacharias Master Plan non-potable water system. The Baldwin Master Plan area is not proposed to be served with non-potable water.

##### Master Plan Boundaries Existing Demand

Existing water demands in the Master Plan boundaries are almost entirely non-potable, agricultural demands that are supplied by shallow (above-Corcoran) groundwater wells. Existing demands are not metered so they were estimated based on the approximate number of dwelling units and available crop and evapotranspiration information for the area. A summary of existing demands in the Master Plan boundaries are summarized in Table 3.15-2 (potable demands) and Table 3.15-3 (non-potable demands).

**Table 3.15-2: Existing Potable Water Demand**

Land Use	Total Acreage (acres)	Number of Units (EDU) <sup>1</sup>	Water Demand Factors (Residential gpcd) <sup>2</sup>	2018 Demand (AFY) <sup>3</sup>
Very Low Density Residential	n/a	34	102.9	14
Notes:				
<sup>1</sup> Estimated based on aerial image of Zacharias project area.				
<sup>2</sup> Average residential gallons per capita per day based on 2018 demand provided by City of Patterson.				

Land Use	Total Acreage (acres)	Number of Units (EDU) <sup>1</sup>	Water Demand Factors (Residential gpcd) <sup>2</sup>	2018 Demand (AFY) <sup>3</sup>
<sup>3</sup> Assumes average household size of 3.46 per current City population and household count. Demand = 34 [EDU] * 3.46 [person/EDU] * 102.9 [gal/day/person] * 10 <sup>-6</sup> [MG/gal] * 1120 [AFY/MGD]				

**Table 3.15-3: Existing Non-Potable Water Demand**

Land Use/Crop Type <sup>1</sup>	ET <sub>0</sub> (in/yr) <sup>2</sup>	Irrigated Area (acre)	Irrigation Efficiency <sup>2</sup>	Total Demand (AFY) <sup>3</sup>
Alfalfa and Alfalfa Mixtures	47.3	268.5	65%	1,630
Almonds	37.6	363.1	75%	1,516
Beans	26.7	64.7	65%	222
Cherries	41.1	38.6	75%	176
Idle	n/a	19.4	0%	0
Miscellaneous Truck Crops	26.7	75.6	65%	259
Plums, Prunes, Apricots	41.1	61.9	75%	283
Tomatoes	26.1	384.2	65%	1,285
<b>Landscape Water Demand Total</b>				<b>5,370</b>
Notes: <sup>1</sup> DWR Land Use data (2014) downloaded from <a href="https://gis.water.ca.gov/arcgis/rest/services/Planning/CropMapping2014/MapServer">https://gis.water.ca.gov/arcgis/rest/services/Planning/CropMapping2014/MapServer</a> . <sup>2</sup> ITRC Data downloaded from <a href="http://www.itrc.org/etdata/index.html">http://www.itrc.org/etdata/index.html</a> , for a typical year (1997) in Zone 14. <sup>3</sup> Demand [AFY] = ET <sub>c</sub> [in./yr.] * (1/12) [ft./in.] * Irrigated Area [acre]/Irrigation Efficiency [-]				

**City of Patterson Existing Demand**

The 2018 Water Management Plan (WMP) and the 2018 Annual Report were provided for analysis of the existing water system demands within City limits. Based on the 2018 Annual Report, the City currently has approximately 6,600 active water meter accounts. Of the potable water meters, roughly 6,170 are associated with residential users (single family and multi-family meters, including both indoor and outdoor demands), 275 are associated with non-residential indoor water use, and 155 are associated with non-residential irrigation. Based on the City’s latest billing records for a full calendar year (2018), the City has a potable water demand of 3,102 AFY. This demand is about 16 percent lower than the existing demand reported in the WMP, which was based on 2013 billing records. The 2018 demand is slightly higher (5 percent) than the demand from 2015 presented in the 2015 UWMP. The City’s existing non-potable demand is approximately 216 AFY, as recorded in the 2015 UWMP.

Aside from the effects of the drought, the reason water use has decreased since the WMP was developed—the increase from 2015 to 2018 due to 2015 occurring in the middle of the drought which suppressed demands—is that the City has implemented an effective water conservation

program. The City meters all of its services and has an increasing tiered rate schedule to encourage efficient water use. The City has ordinances in place to discourage water waste, including odd-even watering and penalties for irrigation “run-off.” In 2008, the City started a program to replace its oldest water pipes with the highest frequency of leaks and repairs in order to reduce water loss. In general, the City has decreased its per capita water usage year after year as part of ongoing conservation efforts to both comply with SB X7-7 requirements and to more sustainably manage its groundwater supply. Demands in 2013, during a dry water year, are higher than demands recorded in 2018, a below average water year, which could indicate that users are becoming accustomed to water-saving habits implemented during the extended drought period recorded from 2014-2017. Based on the most recent demand data for the City, it is reasonable to assume that the projections developed as part of the WMP and UWMP may be conservative. However, given that it has not yet been a full two years since the end of the drought, it cannot yet be determined what the long-term impacts of the conservation actions implemented during the drought will be on City demands. Therefore, the demand factors and projected City demands from the WMP will be used for the purposes of this WSA, recognizing that they may overpredict actual future demand but will provide a conservative analysis for determination of available water supplies.

#### **Future Water Demand**

The buildout potential of the development is 5,391 dwelling units and 7,765,000 square feet of non-residential uses (GDR Engineering 2019). This development will replace existing land uses (agricultural and low-density residential) and generate a new water demand from indoor and outdoor uses. Projected potable water demand at buildout was developed based on the demand factors developed for the WMP and the planned land use. In the WMP, existing water demand (water consumption billing data) and land use data (City’s GIS) was used to develop water demand factors. Based on the total water usage by parcel and the total acreage by land use, the demand factors were determined for each of the six existing land use categories. These demand factors were then adjusted based on new development standards (such as units per acre). Demand projections developed for the WMP were used in the 2015 UWMP and incorporated conservation in order to meet the required SB X7-7 target of 164 gallons per capita per day (gpcd).

Non-potable demand projections were developed based on assumed irrigated acreage for the development areas and the required water based on evapotranspiration data. Non-potable demands for the proposed lakes within the Project area were calculated based on the approximate loss to evaporation (provided by GDR). It is assumed that any losses to recharge would be immediately recaptured by the shallow wells refilling the lakes. The projected demands calculated for the development are an update to those included in the 2018 WMP which relied on less specific land use information from the 2040 General Plan.

For comparison, the demand projection for the Project area was calculated based on the estimated residential population for Project and the per capita demand factor included in the 2018 WMP (158 gpcd) and calculated from the 2018 billing data (103 gpcd). The land use-based projection fell between the two population-based projections. The land use-based demands were not as high as the maximum population-based projection as the Project area includes a lower percentage of non-residential development (about 25 percent) compared to the City as a whole (about 50 percent). The estimated future per capita demand factor included in the WMP was developed based on the

complete buildout of the City’s General Plan so it is expected that future developments will include a higher percentage of non-residential development to balance out this primarily residential project.

The total projected water demand for the Project area is estimated to be 2,159 AFY at buildout for an average water year, which compares to an existing water demand of 5,384 AFY and the previously projected demand of 2,457 AFY from the WMP. The demands projected for the Project area in the 2018 WMP are presented in Table 3.15-4. Table 3.15-5 summarizes the proposed development by land use, and the projected demands are presented in Table 3.15-6 (potable demands) and Table 3.15-7 (non-potable demands). A comparison of the demand projection for the Project from the WMP and for this WSA are presented in Table 3.15-8. As shown in Table 3.15-8, the updated projections indicate a net demand reduction, with reduced potable demand and an increased non-potable demand for the area.

**Table 3.15-4: 2018 WMP Potable Water Demand Projection for the Zacharias and Baldwin Area**

Land Use	Acreage	Dwelling Units	Water Demand Factors (AFY/acre) <sup>2</sup>	Projected Potable Demand (AFY)
Low Density Residential	1,293	n/a <sup>1</sup>	1.9	2,457
<b>Total</b>	<b>1,293</b>	—	—	<b>2,457</b>

Notes:  
<sup>1</sup> An exact unit count was not available for the Project area during the development of the WMP.  
<sup>2</sup> Water demand factors were developed for the WMP demand projection based on billing data and land use.

**Table 3.15-5: Zacharias and Baldwin Master Plan Area Development by Land Use Category**

Land Use Categories	Acreage (Gross)	Dwelling Units	Square Footage
Low Density Residential	263	1,114	—
Medium Density Residential	524	3,454	—
High Density Residential	31	538	—
Mixed Use	28	285	505,000
Commercial	22	—	350,000
Light Industrial	318	—	6,910,000
Park/Bike & Pedestrian Pathways	65	—	—
Open Space (Lakes)	13	—	—
Public/Institutional <sup>1</sup>	29	—	—
<b>Total</b>	<b>1,293</b>	<b>5,391</b>	<b>7,765,000</b>

Note:  
<sup>1</sup> The acreage for the Public/Institutional was not broken out in the plans provided by GDR included in Appendix I. Per GDR direction, 14 acres were extracted from the Low Density Residential category and 15 acres were extracted from the Medium Density Residential category.  
 Source: Zacharias Master Planning Area (GDR Engineering 2020), Baldwin Master Planning Area (GDR Engineering 2019)

**Table 3.15-6: Zacharias and Baldwin Master Plan Area Potable Water Demand Projection by Land Use**

Land Use	Acreage	Dwelling Units	Water Demand Factors (AFY/acre) <sup>2</sup>	Projected Potable Demand (AFY)
Low Density Residential	263	1,114	1.9	500
Medium Density Residential	524	3,454	1.1	577
High Density Residential	31	538	2.5	77
Mixed Use	28	285	2.2	62
Community Commercial	22	—	0.8	18
Light Industrial	318	—	0.4	127
Park/Bike & Pedestrian Pathways	65	—	2.6	168
Open Space (Lakes)	13	—	0 <sup>1</sup>	0
Public/Institutional	29	1,400 students	1.1	32
<b>Total</b>	<b>1,293</b>	<b>5,391</b>	—	<b>1,560</b>

Notes:  
<sup>1</sup> Water demand factors were developed for the WMP demand projection based on billing data and land use.  
<sup>2</sup> The demand factor for Open Space was set to zero for this projection as the lakes included in the Project plans do not have a potable demand associated with them.

**Table 3.15-7: Zacharias and Baldwin Master Plan Area Non-Potable Water Demand Projection by Land Use**

Land Use Categories	Acreage (Gross)	Irrigated Acreage Factor <sup>1</sup>	Irrigated Acreage	ET <sub>c</sub> (in) <sup>2</sup>	Projected Non-Potable Demand (AFY) <sup>3</sup>
Low Density Residential	393	—	0	56.2	0
Medium Density Residential	393	—	0	56.2	0
High Density Residential	31	—	0	56.2	0
Mixed Use	28	0.1	2.8	56.2	13
Community Commercial	22	0.1	2.2	56.2	10
Light Industrial	318	0.1	31.8	56.2	149
Park/Bike & Pedestrian Pathways	63	0.8	51.8	56.2	243
Open Space (Lakes)	9	—	—	—	116 <sup>4</sup>
Public/Institutional	38	0.5	14.5	56.2	68
<b>Total</b>	<b>1,293</b>	—	<b>103</b>	—	<b>599</b>

Notes:  
<sup>1</sup> Based on assumptions for the development area. Irrigation demand for residential land use is not separated from

Land Use Categories	Acreage (Gross)	Irrigated Acreage Factor <sup>1</sup>	Irrigated Acreage	ET <sub>c</sub> (in) <sup>2</sup>	Projected Non-Potable Demand (AFY) <sup>3</sup>
potable demands as residential units are unlikely to be dual-plumbed.					
<sup>2</sup> ITRC Data downloaded from <a href="http://www.itrc.org/etdata/index.html">http://www.itrc.org/etdata/index.html</a> , for a typical year (1997) in Zone 14. Assumed ET <sub>c</sub> for grass.					
<sup>3</sup> Assumed Irrigation Efficiency equals 1 and that it was a normal water year (average rainfall): Demand [AFY] = ET <sub>c</sub> [in./yr.] * (1/12) [ft./in.] * Irrigated Area [acre]					
<sup>4</sup> The non-potable demand for the lakes was calculated based on the approximate loss by evaporation. This value was provided by GDR.					

**Table 3.15-8: Water Demand Projection Comparison for the Zacharias Master Plan**

Category	Projected Demand for WSA	2018 WMP Projected Zacharias/Baldwin Demand <sup>1</sup>	Net Water Demand (Change from WMP)
Potable (AFY)	1,560	2,021	-461
Non-Potable (Irrigation) (AFY)	599	436	163
<b>Total (AFY)</b>	<b>2,159</b>	<b>2,457</b>	<b>-298</b>

Notes:  
<sup>1</sup> The 2018 WMP projected demands based on General Plan land use and a land use demand factor. The assumption from the WMP is that around 82% of demands will be met with a potable supply and 18% would be met with non-potable supply. That split between potable and non-potable was applied to the projection for the Zacharias and Baldwin Plan areas.

Although this EIR is based on a 20-year buildout horizon, the WSA conservatively assumed that the Master Plans would be developed in two evenly split phases spanning 5 years each, beginning in 2020. A breakdown of the development phasing and projected demands with this assumption is presented in Table 3.15-9, Table 3.15-10, and Table 3.15-11.

**Table 3.15-9: Development Phasing by Land Use Category for the Zacharias Master Plan**

Land Use Category	2020-2025	2025-2030	2030-2035	2035-2040	Total
Low Density Residential	131.7 acres	131.7 acres	0.0 acres	0.0 acres	263.3 acres
	557 DUs	557 DUs	0 DUs	0 DUs	1114 DUs
Medium Density Residential	262.1 acres	262.1 acres	0.0 acres	0.0 acres	524.1 acres
	1,727 DUs	1,727 DUs	0 DUs	0 DUs	3,454 DUs
High Density Residential	15.3 acres	15.3 acres	0.0 acres	0.0 acres	30.6 acres
	269 DUs	269 DUs	0 DUs	0 DUs	538 DUs
Mixed Use	14.1 acres	14.1 acres	0.0 acres	0.0 acres	28.2 acres
	143 DUs	143 DUs	0 DUs	0 DUs	285 DUs
Community Commercial	11.1 acres	11.1 acres	0.0 acres	0.0 acres	22.2 acres
Light Industrial	158.8 acres	158.8 acres	0.0 acres	0.0 acres	317.5 acres

Land Use Category	2020-2025	2025-2030	2030-2035	2035-2040	Total
Park/ Bike & Pedestrian Pathways	32.4 acres	32.4 acres	0.0 acres	0.0 acres	64.7 acres
Open Space (Lakes)	6.7 acres	6.7 acres	0.0 acres	0.0 acres	13.4 acres
Public/ Institutional	14.5 acres	14.5 acres	0.0 acres	0.0 acres	29.0 acres
<b>Total</b>	<b>646.5 acres</b>	<b>646.5 acres</b>	<b>0.0 acres</b>	<b>0.0 acres</b>	<b>1293.0 acres</b>
	<b>2,696 DUs</b>	<b>2,696 DUs</b>	<b>0 DUs</b>	<b>0 DUs</b>	<b>5,391 DUs</b>

**Table 3.15-10: Phased Potable Demand Projections for the Zacharias Master Plan**

Land Use Categories	2020	2025	2030	2035	2040
Low Density Residential	0	250	500	500	500
Medium Density Residential	0	288	577	577	577
High Density Residential	0	38	77	77	77
Mixed Use	0	31	62	62	62
Community Commercial	0	9	18	18	18
Light Industrial	0	64	127	127	127
Park/ Bike & Pedestrian Pathways	0	84	168	168	168
Open Space (Lakes)	0	0	0	0	0
Public/ Institutional	0	16	32	32	32
<b>Total (AFY)</b>	<b>0</b>	<b>780</b>	<b>1,560</b>	<b>1,560</b>	<b>1,560</b>

**Table 3.15-11: Phased Non-Potable Demand Projections for the Zacharias Master Plan**

Land Use Categories	2020	2025	2030	2035	2040
Low Density Residential	0	0	0	0	0
Medium Density Residential	0	0	0	0	0
High Density Residential	0	0	0	0	0
Mixed Use	0	7	13	13	13
Community Commercial	0	5	10	10	10
Light Industrial	0	74	149	149	149
Park/ Bike & Pedestrian Pathways	0	121	242	242	242
Open Space (Lakes)	0	58	116	116	116
Public/ Institutional	0	34	68	68	68
<b>Total (AFY)</b>	<b>0</b>	<b>299</b>	<b>599</b>	<b>599</b>	<b>599</b>

Using a land use-based demand projection discussed in the City’s 2018 WMP, the City’s total projected water demand in 2040, as presented in the 2015 UWMP, is 11,801 AFY. This demand accounts for the City’s planned conservation efforts at the time the WMP and UWMP were developed. Based on the selected supply portfolio, the City plans to meet about 82 percent of demands with potable supplies (about 9,642 AFY) and about 18 percent of demands with non-potable supplies (about 2,159 AFY). Table 3.15-12 summarizes the City’s projected demand from the WMP.

**Table 3.15-12: Citywide Projected 2040 Demands**

Demand Type	2018 WMP Projected 2040 City Demand (AFY)
Potable	9,642
Non-Potable (Irrigation)	2,159
<b>Total</b>	<b>11,801</b>

Source: 2018 City of Patterson Water Master Plan (Woodard & Curran, 2018) and 2015 City of Patterson UWMP (RMC 2016)

**Water Supply**

The City’s current water supply source is local groundwater from the Delta-Mendota Groundwater Subbasin.

Local groundwater from the Delta-Mendota Subbasin (a subbasin of the San Joaquin Valley Groundwater Basin) is the sole source of the City’s current production supply. The City operates 10 water production wells, eight of which dedicated to potable supply and two for non-potable supply. One of the potable wells (Well 6) is currently on standby and its capacity is not being considered as part of the City’s supply. The City’s existing potable well field is located in the eastern portion of the City between East Las Palmas Avenue, South 2<sup>nd</sup> Street and the Patterson Irrigation District Canal. The City supplies potable groundwater for residential, industrial, and commercial uses through a combination of these wells, storage tanks, and a network of piping. The City’s existing groundwater capacity is 6,620 AFY of potable supply (7,500 gpm instantaneous capacity) and 930 AFY of non-potable supply (1,600 gpm instantaneous capacity), as presented in Table 3.15-13.

**Table 3.15-13: City Existing Groundwater Well Capacity**

Well No.	Potable/Non-Potable	Instantaneous Capacity (gpm)
2	Potable	800
4	Non-Potable	900
5	Potable	1,400
6	Potable	600 <sup>1</sup>
7	Potable	1,500
8	Potable	1,000

Well No.	Potable/Non-Potable	Instantaneous Capacity (gpm)
9	Potable	800
11	Potable	1,200
Keystone	Non-Potable	700
14 <sup>2</sup>	Potable	800
<b>Total Non-Potable</b>	<b>Annual Capacity: 930 AFY<sup>3</sup></b>	<b>Instantaneous Capacity: 1,600 gpm</b>
<b>Total Potable</b>	<b>Annual Capacity: 6,620 AFY<sup>3</sup></b>	<b>Instantaneous Capacity: 7,500 gpm</b>

Notes:

- <sup>1</sup> Well 6 is currently on standby and its capacity is not included in the City's supply.
- <sup>2</sup> Well 14 is planned and will be online within the next year.
- <sup>3</sup> Annual yield includes well downtime for maintenance and other operational considerations. The wells do not run continuously.

The Delta-Mendota Subbasin (Subbasin) is approximately bounded on the west by the Coast Range, on the north by the Stanislaus/San Joaquin County line, on the east by the San Joaquin River and follows the boundary of the Tranquility Irrigation District at its southernmost reach. Groundwater studies of the local basin from 2002 through 2010, conducted by Kenneth D. Schmidt and Associates Groundwater Consultants (KSA) based in Fresno, California, concluded that there are essentially two aquifers underlying the City; a lower confined zone, and an upper unconfined zone. The two aquifers are separated by the thick, semi-impermeable Corcoran Clay layer. The Corcoran Clay formation is a regional aquitard which underlies the subbasin at depths of about 100 to 500 feet and acts as a confining bed. The upper (semi-confined) and lower (confined) aquifers of the Subbasin are generally quite thick, with groundwater wells commonly extending to depths of up to 800 feet to extract from the sub-Corcoran lower aquifer.

KSA estimated that natural inflows to the two underlying aquifers are approximately 3,500 AFY (upper) and 8,900 AFY (lower), respectively, based on hydraulic conductivity, transmissivity, and gradients. Additional recharge to the upper aquifer is expected from canal seepage, percolation of applied irrigation water, and stream flow seepage. Hence, total inflow to the local basin underlying the City is upwards of 12,500 AFY (KSA 2010). Water quality in the shallower portion of the upper aquifer (reachable within about 25 feet of the land surface) is suitable for non-potable use, though recent monitoring suggests that total dissolved solids (TDS) and nitrate concentrations are on the rise.

Water quality below the Corcoran Clay is generally suitable for potable use, however there are some instances of high TDS and Chrome 6 levels. Chrome 6 concentrations in the Subbasin have generally been compliant with State and Federal regulations. The California Department of Public Health (now the Division of Drinking Water) implemented a stricter standard in 2014 (reducing the acceptable limit from 50 micrograms per liter to 10 micrograms per liter) however the standard was rescinded. A new standard has not yet been established; however, the Chrome 6 levels would not be in compliance if the 2014 standard was re-imposed.

In 2014, the Sustainability Groundwater Management Act (SGMA) was passed requiring the formation of Groundwater Sustainability Agencies (GSAs) and preparation of Groundwater Sustainability Plans (GSPs) to sustainably manage groundwater supplies. The City formed its own GSA (City of Patterson GSA) to partner with seven other GSAs to develop the GSP for the Northern and Central Regions of the Delta-Mendota Subbasin. As the Delta-Mendota Subbasin is considered a critically overdrafted high-priority groundwater basin by the California Department of Water Resources (DWR), the Northern & Central Delta-Mendota Region GSP was submitted by January 31, 2020. At the time this WSA was prepared, the GSP has been completed and was submitted to the DWR. Based on the information provided in the GSP (additional information can be found on the GSP website), it is expected that the following groundwater management measures will be implemented in the basin:

- Increased conservation and efficiency
- Increased groundwater recharge
- Increased water recycling and reuse, and
- Integrated groundwater management with other water resources (such as stormwater)
- Lower aquifer pumping limitations to minimize inelastic land subsidence.

In anticipation of the requirements of SGMA and the preparation of the GSP, the City conducted an Operational Yield Study as part of the WMP. The goal of that exercise was to determine the approximate volume of groundwater that the City could extract without impacting its infrastructure or use of groundwater resources outside of its sphere of influence.

Results of that study were incorporated into the development of the future water supply portfolio (discussed in the next section). Additional details from the Operational Yield Study can be found in the 2018 WMP.

#### **Future Water Supply Summary**

As part of the City's 2018 WMP, the City evaluated supply options and selected a supply portfolio that allowed the City independent control of its water supply and easier implementation of water supply projects. The complete supply portfolio includes groundwater pumping for potable and non-potable use, recycled water, stormwater capture, and conservation. The four supply projects selected to enhance the City's existing supply portfolio are discussed below as is the new supply offered by the Project.

Results of the WMP and Operational Yield Study conducted by the City were considered during development of the GSP. Per the GSP, it was assumed that at buildout the City would pump 11,776 AFY of potable water from the deep aquifer and 1,302 AFY of non-potable water from the shallow aquifer. These supplies were determined to be acceptable under the basin management plan and are in line with the future water supply presented in this section. The City's planned supply portfolio, updated since the WMP to include the supply provided by the Project, is summarized in Table 3.15-14 with a breakdown of planned supplies in 2040 and at buildout.

**Table 3.15-14: Planned City Water Supplies with the Master Plans**

Supply	Planned Yield in 2040	Planned Yield at Buildout (2050)
Potable Groundwater (AFY)	8,388	10,115
Non-Potable Groundwater (AFY)	856	1,032
Recycled Water (AFY)	857	1,512
Stormwater Capture (to potable) (AFY)	1,700	1,700
Stormwater Capture (to non-potable) (AFY) <sup>1</sup>	1,185	1,185
<b>Total (AFY)</b>	<b>12,986</b>	<b>15,544</b>
<b>Potable (AFY)</b>	<b>10,088</b>	<b>11,815</b>
<b>Non-Potable (AFY)</b>	<b>2,898</b>	<b>3,729</b>

Notes:  
<sup>1</sup> Stormwater capture (to non-potable) represents the on-site stormwater capture included in the Project. This supply was not included in the 2018 WMP.

*Conservation*

The City will implement a variety of conservation measures with estimated water savings ranging from 700 AFY to 1,800 AFY. The supply portfolio assumes approximately 1,000 AFY of water savings due to conservation at buildout. Examples of conservation programs that have been or could be implemented include:

- Existing conservation program
  - Toilet, washing machine, dishwasher, etc. replacement rebates
  - Cash for Grass rebates
  - Free water conserving fixtures
  - Updated plumbing codes
  - Residential water surveys to identify possible areas of waste
- Potential conservation program
  - Future plumbing codes updates
  - Require hot water on demand

Conservation is not included in the future supply summary, but it was considered and planned in order to reduce projected future demands.

*Treated Wastewater for Non-Potable Reuse*

The City’s Water Quality Control Facility (WQCF) will be retrofitted to treat water to non-potable Title 22 standards after which the effluent will be pumped to infiltration ponds (to be constructed) near the existing non-potable wells. In addition to pumping from the existing wells, new shallow wells will be constructed for additional non-potable water supplies.

#### *Del Puerto Creek Stormwater Capture*

Seasonal stormwater flows from Del Puerto Creek can be captured and diverted to percolation ponds. Pending a groundwater study, these ponds would recharge the shallow aquifer (for non-potable use) and/or the deep aquifer (for potable use). Water could then be pumped from the aquifers through existing and/or new wells.

Beneficial use of stormwater is a part of the Northern & Central Delta-Mendota Region GSP and capture and recharge of Del Puerto Creek flows are included as a project in the GSP. The City will work with neighboring agencies to maximize beneficial use of the available stormwater in the region.

As part of the WMP effort, it was estimated that the annual yield of Del Puerto Creek stormwater capture would be approximately 1,700 AFY. Initial field work indicates that a properly sited recharge basin would recharge to the deep aquifer to replenish potable supply. For the purposes of the WMP and this WSA, it is assumed that the stormwater would provide a potable water supply, though additional work is planned to investigate and determine the optimal project site.

#### *Additional Groundwater Pumping*

The existing groundwater pumping capacity of the City of Patterson is 7,500 AFY, though only about 4,500 AFY is currently being utilized. An Operational Yield Study was conducted as part of the 2018 WMP to estimate the volume of groundwater that the City could extract from the underlying Delta-Mendota Groundwater Subbasin without impacting their current groundwater pumping infrastructure and without significantly impacting the use of groundwater resources in the area surrounding the City's Sphere of Influence. Based upon the results of the Operational Yield Study, which indicated that the City could pump in the range of 10,000 – 12,000 AFY, the City could construct additional groundwater wells to increase its pumping capacity. Under the future supply portfolio, it is assumed that the City will construct enough potable wells to produce up to 10,115 AFY at buildout.

#### *On-site Stormwater Capture and Recharge*

While not included in the supply portfolio presented in the 2018 WMP, the City has included a requirement that all new development, including the Master Plans, include stormwater retention and percolation on-site. This requirement means that any rainfall on the development area would be captured and recharged, with no water lost to the San Joaquin River. Though the yield of the Master Plans' stormwater basin and groundwater recharge basin has not been calculated at this time, a simplified calculation can be conducted based on the Master Plan areas and the City's annual average rainfall. If it is assumed that all rainfall falling on the site is captured, then the additional supply provided by the Master Plans is 1,185 AFY, as shown:

$$\text{Estimated On-site Stormwater Capture} = 1,293 \text{ acres} \times 11 \text{ inches of rain/ year} \times 1 \text{ foot}/12 \text{ inches} = 1,185 \text{ AFY}$$

The WSA assumed that all on-site stormwater capture will provide an additional non-potable supply.

**Water Supply Reliability**

Estimates of the City’s supply during single and multiple dry years is based on the information provided in the City’s 2015 UWMP. On-site stormwater capture provided by the Project is not included in the dry year supply estimates as a more detailed analysis of on-site capture in dry years has not been conducted. Table 3.15-15 summarizes the City’s supply availability by water year type. These UWMP numbers reflect that the available water supply was assumed to be equal to the demand projections for each potential water year type through 2040 with the understanding that the City should be able to draw on the groundwater basin to fulfill its demands.

**Table 3.15-15: Available Supply Under Normal and Dry Year Conditions**

Year Type	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)	2040 (AFY)
<b>Normal Year<sup>1</sup></b>	6,969	9,457	10,633	11,810	12,986
<b>Single-Dry Year<sup>2</sup></b>	6,376	8,272	9,448	10,625	11,801
<b>Multiple Dry Year<sup>2</sup></b>	—	—	—	—	—
First Year	6,376	8,272	9,448	10,625	11,801
Second Year	6,376	8,272	9,448	10,625	11,801
Third Year	6,376	8,272	9,448	10,625	11,801
Notes:					
<sup>1</sup> This supply projection has been updated to include stormwater capture (to non-potable) from on-site stormwater capture included in the Project. This supply was not included in the 2015 UWMP.					
<sup>2</sup> Source: 2015 City of Patterson UWMP (RMC, 2016)					

With the development of the GSP for the Delta-Mendota Subbasin, there will be some limits on groundwater pumping during dry years. Pumping restrictions in the GSP area are based on 2015 water elevations in the groundwater basin. As stated in the GSP, the City should be able to continue extractions to the point where lower aquifer groundwater elevations are no deeper than 95% of 2015 water elevations. For the upper aquifer, 2015 groundwater elevations are the lowest they can go. As discussed previously, the City has implemented an effective conservation program to reduce demands and is continuing to expand their conservation efforts. For the purposes of this WSA, the supplies under dry year conditions presented in the UWMP will be used. While those supplies may be slightly conservative as they do not include the on-site stormwater capture provided by the Master Plans, conservation initiatives will be implemented to reduce demands, especially during dry years.

**Supply and Demand Comparison**

To determine if the City currently has sufficient supply to meet the Master Plans’ demands the City’s existing supply and demands with the Project were compared. The City’s total existing demand (for the entire 2018 calendar year) is 3,318 AFY. With the addition of the projected demand at buildout, the City’s total demand would be 5,477 AFY (broken out in Table 3.15-16).

**Table 3.15-16: Existing City Demand with Project**

Category	Existing City Demand	Zacharias Demand	Existing City Demand + Project Demand
Potable (AFY)	3,102	1,560	4,662
Non-Potable (Irrigation) (AFY)	216	599	815
<b>Total (AFY)</b>	<b>3,318</b>	<b>2,159</b>	<b>5,477</b>

The City’s existing supplies will be supplemented by the estimated 1,185 AFY on-site stormwater capture and recharge included in the Zacharias Master Plan. This brings the City’s total existing supplies to around 8,735 AFY. Based on this supply and the projected demand with the Project, the City has adequate supply to meet its existing demands plus the Zacharias development (as presented in Table 3.15-17). This assessment does assume that the City’s demands remain constant aside from the implementation of the Master Plans, however there is adequate supply to support additional development throughout the City’s service area.

**Table 3.15-17: Existing City Demand with Master Plans versus Existing Supply with Master Plans**

Category	After Project Implementation
Total City Existing Supply (AFY) <sup>1</sup>	8,735
Total City Demand with Zacharias Development (AFY)	5,477
<b>Sufficient Supply?</b>	<b>Yes</b>
Notes:	
<sup>1</sup> This supply projection has been updated to include stormwater capture (to non-potable) from on-site stormwater capture included in the Project. This supply was not included in the 2015 UWMP.	

To more fully determine the City’s ability to meet its planned demands as well as the Project demands, the phased supply and demand through 2040 was assessed. The total water demand for the Project is 2,240 AFY at buildout in 2040. The projected water use in 2040 of 2,159 AFY is comprised of 1,560 AFY for potable demands and 599 AFY for irrigation. The Project would reduce the projected potable demands and increase the projected non-potable demands for the City (compared to the projected demand for the Project area included in the WMP), with a net decrease in overall demand of 298 AFY as shown in Table 3.15-18. Changes to the City’s potable and non-potable water demand are broken out by 5-year phases in Table 3.15-19 and Table 3.15-20, respectively.

**Table 3.15-18: Citywide Projected 2040 Water Demands with and without the Project**

Category	2018 WMP Projected City Water Demand (AFY)	Change in Projected Zacharias/Baldwin Water Demand (AFY)	Updated Projected City Water Demand (AFY)
Potable	9,710	-461	9,249
Non-Potable (Irrigation)	2,091	163	2,254
<b>Total</b>	<b>11,801</b>	<b>-298</b>	<b>11,503</b>

**Table 3.15-19: Phased Citywide Projected 2040 Potable Water Demands with and without the Project**

Land Use Categories	2020	2025	2030	2035	2040
2018 WMP Projected City Demand (AFY)	5,246	6,806	7,775	8,743	9,710
Change in Projected Zacharias Demand (AFY)	0	-230	-461	-461	-461
<b>Updated Projected City Demand (AFY)</b>	<b>5,246</b>	<b>6,576</b>	<b>7,314</b>	<b>8,282</b>	<b>9,249</b>

**Table 3.15-20: Phased Citywide Non-Projected 2040 Potable Water Demands with and without the Project**

Land Use Categories	2020	2025	2030	2035	2040
2018 WMP Projected City Demand (AFY)	1,130	1,466	1,674	1,882	2,091
Change in Projected Zacharias Demand (AFY)	0	82	163	163	163
<b>Updated Projected City Demand (AFY)</b>	<b>1,130</b>	<b>1,547</b>	<b>1,837</b>	<b>2,046</b>	<b>2,254</b>

It is worth noting that the GSP assumes a higher available groundwater supply for the City at buildout (2050) than presented in the WMP. The supply portfolio presented in the GSP included a total of 13,078 AFY of groundwater supply (11,776 AFY of potable, below-Corcoran, supply and 1,302 AFY of non-potable, above-Corcoran, supply) compared to 11,417 AFY (10,115 AFY of potable supply and 1,302 AFY of non-potable supply) in the WMP. Though the supply projections included in the GSP are the most recent, they are not yet approved by DWR so the lower, more conservative groundwater supply numbers from the WMP (and UWMP) will be used for determining the available supply for the Project. A comparison of the projected City supply at buildout (2050) in the WMP and GSP is included in Table 3.15-21.

**Table 3.15-21: Comparison of Planned City Groundwater Supplies at Buildout (2050)**

Supply	Included in 2018 WMP Supply Portfolio	Included in GSP
Potable Groundwater (AFY)	10,115	11,776

Supply	Included in 2018 WMP Supply Portfolio	Included in GSP
Non-Potable Groundwater (AFY)	1,302	1,302
<b>Total Groundwater Supply (AFY)</b>	<b>11,417</b>	<b>13,078</b>
Recycled Water (AFY)	1,512	1,512
Stormwater Capture (to potable) (AFY)	1,700	—
<b>Total Potable (AFY)</b>	<b>11,815</b>	<b>11,776</b>
<b>Total Non-Potable (AFY)</b>	<b>2,814</b>	<b>2,814</b>
<b>Total Supply (AFY)</b>	<b>14,629</b>	<b>14,590</b>

Projected water supply (from the WMP and UWMP, updated with the on-site stormwater capture) and demand for the entire City service area including the Project is presented in Table 3.15-22. As shown in the table, the City’s planned water supply is sufficient to meet demands to 2040, including those projected for the Project. Given that future water supplies for the City were planned based on available data at the time, Project stakeholders, including the City, should work together to update the phasing and implementation plan of planned supply projects now that the timing of this development project is better understood. Further, the phasing of the supplies included in the WMP does not align with those presented in the GSP, so the City and Project stakeholders will need coordinate with GSP partners to ensure sustainable use of the groundwater basin.

**Table 3.15-22: City Water Demand (with Project) versus Supply**

Category	2020	2025	2030	2035	2040
Total City Supply (AFY) <sup>1</sup>	6,969	9,457	10,633	11,810	12,986
Total City Demand (AFY)	6,376	8,123	9,151	10,327	11,503
<b>Sufficient Supply?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Notes:					
<sup>1</sup> This supply has been updated to include stormwater capture (to non-potable) from on-site stormwater capture included in the Project. This supply was not included in the 2015 UWMP.					

**Supply and Demand Comparison in Dry Years**

When comparing water demand and water supplies to determine availability of a long-term reliable water supply for the proposed Project, the assessment must consider available supply under “average” year conditions as well as for single-dry and multiple-dry water year conditions. The purpose is to evaluate whether there could be shortfalls in supply under various hydrologic conditions, and if so, to provide a basis for planning for those conditions. Dry year supply availability was determined as part of the 2015 UWMP (which did not include on-site stormwater capture provided by the Project). A comparison of the projected supplies and demands with the Project under dry year conditions is presented in Table 3.15-23. As shown in the table, the City has sufficient supplies to meet all projected demands, including the Project, through 2040.

**Table 3.15-23: City Demand (with Project) versus Dry Year Supply**

Category		2020	2025	2030	2035	2040
<b>Total City Supply<sup>1</sup></b>	<b>Single Dry Year (AFY)</b>	6,376	8,272	9,448	10,625	11,801
<b>Total City Demand – Single Dry Year (AFY)</b>		<b>6,376</b>	<b>8,123</b>	<b>9,151</b>	<b>10,327</b>	<b>11,503</b>
<b>Sufficient Supply?</b>	<b>Single Dry-Year (AFY)</b>	Yes	Yes	Yes	Yes	Yes
<b>Total City Supply<sup>1</sup></b>	<b>Multiple Dry Year</b>	—	—	—	—	—
	First Year (AFY)	6,376	8,272	9,448	10,625	11,801
	Second Year (AFY)	6,376	8,272	9,448	10,625	11,801
	Third Year (AFY)	6,376	8,272	9,448	10,625	11,801
<b>Total City Demand – Multiple Dry Year</b>		<b>6,376</b>	<b>8,123</b>	<b>9,151</b>	<b>10,327</b>	<b>11,503</b>
<b>(All Years) (AFY)</b>						
<b>Sufficient Supply?</b>	<b>Multiple-Dry Year</b>	—				
	First Year (AFY)	Yes	Yes	Yes	Yes	Yes
	Second Year (AFY)	Yes	Yes	Yes	Yes	Yes
	Third Year (AFY)	Yes	Yes	Yes	Yes	Yes
Notes:						
<sup>1</sup> Source: 2015 City of Patterson UWMP (RMC, 2016). This supply projection has not been updated to include stormwater capture (to non-potable) from on-site stormwater capture included in the Project.						

The City’s supply portfolio was developed with the impacts of SGMA in mind, but before the GSP had been prepared. It has been assumed that the supply reliability assessment presented in the 2015 UWMP is reasonable for this WSA, but it is recommended that the updated supply reliability assessment required for the 2020 UWMP (which will include additional SGMA-related impacts and new supply information) be reviewed as soon as it is available to confirm this assumption. In the meantime, in order to maintain the water supply reliability of the City supply at the level it currently resides for all of its customers, the Master Plans would incorporate demand management through compliance with the Plumbing Code and Model Water Efficient Landscape Ordinance.

**Conclusion**

Woodard & Curran concluded that the City of Patterson has adequate supply to serve the Zacharias and Baldwin Master Plan areas. While the City has sufficient existing supplies to serve the Master Plans, implementation of the Master Plans would significantly increase the City’s demands and would contribute a substantial portion of the City’s planned buildout.

The Master Plans would result in a net decrease in demand in comparison to the 2018 WMP projection for the Master Plan areas, lowering the City’s projected potable demand by 461 AFY and total demand by 298 AFY. Though the total City demand would be reduced, the projected non-potable demand for the Master Plans is slightly higher (163 AFY higher) than previously projected for this area. That said, the Master Plans would promote upper aquifer recharge throughout the

development area through the incorporation of pervious surfaces per requirements for new development in the City’s sphere of influence. The estimated yield of the on-site capture and recharge to the upper aquifer provided by the Master Plans is approximately 1,185 AFY, which should more than offset the increase in non-potable demand of 140 AFY. The non-potable demand could be reduced or mitigated through drought tolerant landscaping or by requiring more specific landscaping efficiencies.

The City’s supply portfolio, 2015 UWMP and WMP (on which the WSA was based) was developed prior to the completion of the GSP for the Northern & Central Delta-Mendota Regions. While the WMP and UWMP did project for the impacts of SGMA and the GSP includes slightly higher groundwater supplies for the City at buildout then included in the WMP, the City of Patterson will continue to enforce the Plumbing Code and Model Water Efficient Landscape Ordinance provisions that pertain to high water efficiency fixtures and landscaping.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is required.

**Level of Significance After Mitigation**

Less than significant impact.

**Wastewater**

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**Impact US-2: Buildout of the Master Plans would not require additional unplanned treatment capacity at the Water Quality Control Facility.**

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**Impact Analysis**

The City of Patterson would provide wastewater collection and treatment service to the Master Plan areas.

*Zacharias Master Plan*

The City of Patterson provides sanitary sewer service facilities for the city through the use of sanitary sewer main, trunks lines, pump stations, force mains, and the Sewer Treatment Plant. The Zacharias Master Planning Area will provide sanitary sewer collection systems for the planning areas.

The sewer main for the two southwestern warehouses in the Zacharias Ranch Planning Area leading south to the existing sewer main in Keystone Pacific Parkway. This will eventually tie into the existing trunk sewer system running through Sperry and Ward Avenues.

For the TPF Development, Keystone Ranch, and the southern parcels of the Ivy Rose Gardens Planning Areas, a new sewer main will be constructed in Rose Avenue and Ward Avenue to the existing sewer main on Vicki Lynn Lane. The existing 10-inch sewer line on Vicki Lynn Lane will be upgraded to a larger 12-inch line heading southeast towards Salado Creek; up to the existing 8-inch line running parallel to North 4<sup>th</sup> Street that currently connects to the M Street Trunk Line. A new

line on 4th Street will be constructed to help re-route the sewer past the existing blockage in the sewer system on M Street, with the existing 8-inch line being rebuilt / refurbished as necessary. The connection on Ward Avenue and Vicki Lynn Lane will be a temporary connection until the North Patterson Trunk Sewer (NPTS) Line is constructed and operational to the Zacharias Master Planning Area. Upon the operation of the NPTS Line, a sewer line will be constructed to connect north to the NPTS Line, and the connection to Vicki Lynn Lane will be disconnected.

The Lakeside Hills Planning Area, and remainder of the Ivy Rose Gardens and Zacharias Ranch Planning Areas, will connect to the NPTS Line where appropriate. Their construction will be triggered after construction of the NPTS Line up to their property limits, or whenever appropriate afterwards. The NPTS Line will be sized and constructed based on the proposed buildout within the City of Patterson Sewer Master Plan.

The project area sanitary sewer facilities are as shown in Section 2, Project Description, on Exhibit 2-12a. The extension of the NPTS Line, including sizing and facilities, will be as shown on Exhibit 2-12b. The temporary connection to Vicki Lynn Lane and re-routing of the sewer main on 4<sup>th</sup> Street will be as shown on Exhibit 2-12c.

*Baldwin Master Plan*

The City of Patterson provides sanitary sewer service facilities for the city through the use of sanitary sewer main, trunks lines, pump stations, force mains, and the Sewer Treatment Plant. The Baldwin Ranch Master Planning Area will provide sanitary sewer collection systems for the planning area.

A sewer main will be constructed in Baldwin Road connecting the Baldwin Ranch Planning Area. This line will flow north, connecting to the existing North Sperry Trunk Line (NSTL) in Sperry Avenue. The NSTL is currently not in operable conditions and is disconnected from the existing working trunk sewer main in Sperry Avenue. Prior to connection to the NSTL, work will be done on rehabbing the existing NSTL and reconnecting it to the existing trunk sewer system. This includes This is consistent with the current City of Patterson Sewer Master Plan.

The layout of the sewer facilities will be as shown in Section 2, Project Description, on Exhibit 2-12d.

*Combined Master Plans*

Table 3.15-24 summarizes the combined wastewater generation of the Master Plans at buildout. As shown, the Mater Plans would generate an estimate 1.006 MGD at buildout.

**Table 3.15-24: Wastewater Generation Estimate**

Sewer Trunk	Daily Wastewater Generation	
	Gallons Per Day	Million Gallons Per Day
Sperry Avenue (Baldwin Master Plan)	51,540	0.052
Zacharias Road (Lakeside Hills, Zacharias Ranch, and Ivy Rose)	621,006	0.621
Ward Avenue / 4 <sup>th</sup> Street (TPF, Keystone Ranch, and Ivy Rose)	315,875	0.316
Keystone Pacific Parkway (Zacharias Ranch)	23,130	0.023

Sewer Trunk	Daily Wastewater Generation	
	Gallons Per Day	Million Gallons Per Day
<b>Total</b>	<b>1,011,551</b>	<b>1.006</b>

Source: GDR Engineering 2020.

The City of Patterson’s Water Quality Control Facility has a reliable capacity of 2.25 mgd and receives an average of 1.65 mgd during dry weather conditions.

The City approved a 1.25-mgd expansion of the Water Quality Control Facility in 2010, which would increase capacity of 3.50 mgd. However, since approval of the expansion, regulations have been put in place that increase the period of time that wastewater needs to be stored on-site, which effectively reduce sewage treatment capacity by as much as 0.50 mgd, for a capacity of 3.00 mgd.

Furthermore, the City has approximately 1.332 mgd of capacity committed to other approved projects. When the existing dry weather flows of 1.65 mgd are accounted for, there is a projected future demand of 2.982 mgd without buildout of the Master Plans.

As previously noted, the proposed Master Plans would generate 1.006 mgd at buildout. The applicants would be assessed sewer connection fees to fund capital improvements to the municipal wastewater collection and treatment system. This would include capacity upgrades at the Water Quality Control Facility. Any treatment capacity upgrades at the Water Quality Control Facility would be carried out independently of the proposed Master Plans and would be evaluated in a separate environmental review process. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Less than significant impact.

**Mitigation Measures**

No mitigation is necessary.

**Level of Significance After Mitigation**

Less than significant impact.

**Storm Drainage**

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**Impact US-3: Buildout of the Master Plans would not result in downstream flooding impacts from inadequate storm drainage infrastructure.**

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**Impact Analysis**

The Master Plans would be served with separate storm drainage systems described as follows.

*Zacharias Master Plan*

The storm drainage control facilities will be implemented within the Zacharias Master Planning Area with the intention of achieving following:

- Flood Control for the 10-year, 24-hour storm (detention basins) for individual areas, and corresponding Supervisory Control and Data Acquisition (SCADA) outlet devices and lines.
- Flood Control for the 100-year, 24-hour storm (retention basins and wet basin lakes) for the entire Zacharias Master Planning Area.
- The FEMA Solution for retaining the 100-year FEMA floodplain (183 acre-feet of runoff based on the 100-year Flood Depths for Del Puerto Creek Hydraulic Model by Balance Hydrologies, Inc.) for the Zacharias Master Planning Area.
- Recharge of the stormwater runoff into the lower aquifer groundwater table below to Corcoran Clay Layer, where the City's potable water wells draw water from.

The storm drainage system will utilize multiple stages of storage involving both detention and retention purposes for the project site. The Zacharias Ranch Planning Area will utilize a mix of detention (designed for 10-year, 24-hour storage) and retention (designed for 100-year, 24-hour storage) basins. Both types of basins will have SCADA gravity outlet systems with corresponding pipelines to meter the flow out of the basins. The retention basins will be designed to drain stormwater through the SCADA system for up to a 10-year, 24-hour storm event, with the basin retaining and percolating the runoff for corresponding drainage areas for any storm event exceeding a 10-year, 24-hour event; up to a 100-year, 24 hour event. The TPF Development and Keystone Ranch Planning Areas will each have a retention basin with corresponding SCADA outlet systems draining to the lakes. The Ivy Rose Gardens Planning Area will have a detention basin with a pump station and force main for metering water out of the basin to the lakes. The pump station will be designed for a minimum 1360 gpm flowrate.

The Lakeside Hills Development Area will have a series of wet basin lakes for flood control. These lakes will be designed to hold the entirety of the 100-year, 24-hour storm event for the Lakeside Hills Development Area, as well as the difference between the 100-year and 10-year events for the detention basins within the Zacharias Ranch and Ivy Rose Gardens Planning Areas. This will achieve the ultimate goal of storing the 100-year, 24-hour storm event for the entirety of the Zacharias Master Planning Area between the lakes and retention basins. Consequently, the lakes will store the 10-year, 24 hour storm event for the entire Zacharias Master Planning Area, as both the detention and retention basins will drain to the lakes for any storm event equal to or below the 10-year event. The lakes will drain to a pump station that will meter out through a force main to the FEMA Basin. The pump station will have a maximum output of 2000 gpm for draining the lakes. Note that the dry basins (detention basins and retention basins) are designed for a maximum 48-hour drawdown period, whereas the lakes are not required as such.

The Federal Emergency Management Agency (FEMA) Basin will act as a solution to the FEMA requirement to divert or retain the 100-year flood runoff for the Zacharias Master Planning Area. The basin will be designed with a two-stage system for an upper reservoir and lower reservoir area. The lower reservoir will be utilized during smaller storms for a combination of runoff from the floodplain, and for intermediate storage for the stormwater pumped from the lakes. The upper reservoir will be reserved for major storms where floodplain runoff exceeds the lower reservoir. The basin will be designed to percolate the FEMA floodplain runoff within a 48-hour drawdown period. The basin will have an inlet structure attached to the force main coming from the wet basin lakes,

and an outlet structure with corresponding pump station. The basin pump will operate at a maximum 2000 gpm flowrate, so as to drain the stormwater coming from the lakes, and a channel will be provided to minimize infiltration occurrence for the water from the lakes.

The outlet force main from the FEMA Basin will flow to the Recharge Basin Facility, to the northwest of the Zacharias Master Planning Area. The Recharge Basin Facility will be located at the existing rock quarry, where a location has been designated by the City of Patterson. The location noted does not have the Corcoran Clay Layer (an impervious layer separating the potable and non-potable water tables), and instead infiltrates directly into the lower aquifer. The overall Zacharias Master Planning Area will have an annual runoff of 604 acre-feet per year, or 0.539 mgd. The vast majority of this stormwater will be recharged through the Recharge Basin Facility.

The project area facilities provided will be subject to the most up-to-date version of the City of Patterson's Multi-Agency Post Construction Manual, and the corresponding Phase II Permit requirements for stormwater. The developers for each project area will be responsible for meeting these requirements within their project areas (Zacharias Ranch, TPF Development, Keystone Ranch, Lakeside Hills, and Ivy Rose Gardens Planning Areas) and maintaining such facilities as required.

The Storm Drain Master Plan for the project area storm drain facilities is shown in Section 2, Project Description, on Exhibit 2-9a. The FEMA Solution Basin and corresponding facilities is shown on Exhibit 2-9b, and the Recharge Basin Facility and corresponding force main is shown on Exhibit 2-9c.

#### *Baldwin Master Plan*

The Baldwin Master Plan contemplates a storm drainage system consisting of bioswales, inlets, and underground piping that would convey runoff to stormwater basins. The Baldwin Master Plan storm drainage system would connect to the existing municipal system and no off-site improvements would be necessary. Exhibit 2-9d depicts the Baldwin Master Plan storm drainage system.

#### ***Level of Significance Before Mitigation***

Less than significant impact.

#### ***Mitigation Measures***

No mitigation is necessary.

#### ***Level of Significance After Mitigation***

Less than significant impact.

#### **Solid Waste**

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<b>Impact USS-4:</b>	<b>Buildout of the Master Plans may generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.</b>
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#### ***Impact Analysis***

The Master Plans would generate solid waste from both construction and operational activities.

**Baldwin and Zacharias Master Plans**

*Construction Waste Generation*

Construction waste generation is summarized in Table 3.15-25. Buildout of the Master plans would generate 24,612 cubic yards of solid waste over a period of at least two decades. These values are conservative and do not account for any construction demolition debris recycling practices that would reduce the solid waste stream volume.

**Table 3.15-25: Construction Solid Waste Generation Summary**

Activity	Waste Generation Rate	Square Feet	Waste Generation
Residential Construction	0.0025 ton / square foot	7,629,000	19,073 tons
Non-Residential Construction	0.0019 ton / square foot	7,765,000	14,754 tons
<b>Total</b>			<b>34,457 tons 24,612 cubic yards</b>
Notes: 1 ton = 2,000 pounds 1 cubic yard = 1.4 tons Residential solid waste was calculated based on an average dwelling size of 1,500 square feet Source: United States Environmental Protection Agency, 1998. FCS, 2020.			

The Fink Road Landfill has 7.1 million cubic yards of remaining capacity. Thus, proposed Master Plan’s construction solid generation value would represent less than 0.01 percent of remaining capacity.

To ensure that construction activities minimize waste to the maximum extent feasible, MM USS-4 requires compliance with the City of Patterson Construction and Demolition Debris Recycling Ordinance. With the implementation of mitigation, impacts would be less than significant.

*Operational Waste Generation*

Operational solid waste generation estimates are summarized in Table 3.15-26. At buildout, the Master Plans would generate 6,530 cubic yards of solid waste annually. These values are conservative and do not account for any recycling or waste reduction practices that would reduce the solid waste stream volume.

**Table 3.15-26: Operational Solid Waste Generation Summary**

Activity	Waste Generation Rate	Units	Annual Waste Generation
Residential Waste Generation	0.52 ton / dwelling unit / year	5,086 dwelling units	2,645 tons
Non-Residential Waste Generation	0.26 ton / 1,000 square feet / year	7,765K square feet	2,019 tons
<b>Total</b>			<b>4,664 tons 6,530 cubic yards</b>

Activity	Waste Generation Rate	Units	Annual Waste Generation
<p>Notes:                      Residential waste generation based on a rate of 20 pounds / dwelling unit / week                      Non-Residential waste generation based on a rate of 10 pounds / 1,000 square feet / week                      1 ton = 1.4 cubic yards                      Source: FCS, 2020.</p>			

The Fink Road Landfill has 7.1 million cubic yards of remaining capacity. Thus, proposed Master Plan’s annual solid generation value would represent less than 0.01 percent of remaining capacity. Impacts would be less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

**MM USS-4** Prior to issuance of building permits, the Master Plan applicants shall demonstrate compliance with the City of Patterson’s Construction and Demolition Debris Recycling Ordinance. The applicants shall prepare a waste management plan that identifies (1) the estimated volume or mass of construction and demolition debris; (2) the maximum volume or mass of such materials that can be feasibly diverted via reuse or recycling; (3) the vendor or facility that would collect and transport the materials; and (4) the estimated volume and mass of materials that would be landfilled. The City of Patterson shall review and approve the plan and the applicant is required to implement the approved plan during construction activities.

**Level of Significance After Mitigation**

Less than significant impact.

## SECTION 4: CUMULATIVE EFFECTS

### 4.1 - Introduction

CEQA Guidelines Section 15130 requires the consideration of cumulative impacts within an EIR when a project’s incremental effects are cumulatively considerable. Cumulatively considerable means that “. . . the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.” In identifying projects that may contribute to cumulative impacts, the CEQA Guidelines allow the use of a list of past, present, and reasonably anticipated future projects, producing related or cumulative impacts, including those which are outside of the control of the lead agency.

In accordance with CEQA Guidelines Section 15130(b), “. . . the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, the discussion need not provide as great [a level of] detail as is provided for the effects attributable to the project alone.” The discussion should be guided by standards of practicality and reasonableness, and it should focus on the cumulative impact to which the identified other projects contribute rather than on the attributes of other projects that do not contribute to the cumulative impact.

The proposed Master Plans’ cumulative impacts were considered in conjunction with other proposed and approved projects in the City of Patterson and unincorporated Stanislaus County. Table 4-1 provides a list of the other projects considered in the cumulative analysis.

**Table 4-1: Cumulative Projects**

Jurisdiction	Project	Characteristics	Location	Status
City of Patterson	Sperry Commercial Center Project	Travel center (20 fueling positions; convenience store; fast food restaurant; maintenance)	Sperry Avenue / Rogers Road	Approved; Unbuilt
	Arambel Business Park	13.47 million square feet business park / commercial	Rogers Road / Keystone Pacific Parkway	Approved; Partially Built
	West Patterson Business Park	9 million square feet business park / light industrial	Sperry Avenue / Park Center Drive	Approved; Mostly Built
	Villages at Patterson	3,100 dwelling units; 723,800 square feet commercial / office / light industrial	State Route 33 / Walnut Avenue	Approved; Under construction
	BHT Properties Auto Storage	224-acre auto storage facility	Arambel Business Park	Approved; Unbuilt
	Baldwin North Master Plan	445 dwelling units; 300,000 square feet of commercial /	Sperry Avenue / Delta Mendota Canal	Approved; Unbuilt

Cumulative Effects

Jurisdiction	Project	Characteristics	Location	Status
		industrial uses		
Stanislaus County	Crows Landing Industrial Business Park	416 acres aviation; 350 acres light industrial/manufacturing; 349 acres logistics / distribution; 78 acres business park / office; 68 acres public facilities	Naval Auxiliary Air Station Crows Landing	Approved; Unbuilt
	Diablo Grande	2,000 dwelling units; winery; two golf courses	Diablo Grande Parkway	Approved; Partially built
Del Puerto Water District	Del Puerto Canyon Reservoir	82,000-acre-foot reservoir impounded by 260-foot high dam; An approximately 4.65-mile segment of Del Puerto Canyon Road would be relocated around reservoir	Del Puerto Canyon	EIR certified; Project unfunded
Stanislaus Council of Governments	South County Corridor	Expressway linking I-5 and SR-99 in southern Stanislaus County	Zacharias Road between I-5 and SR-33	Proposed

Source: City of Patterson 2020. County of Stanislaus 2020.

## 4.2 - Cumulative Impact Analysis

The cumulative impact analysis below is guided by the requirements of CEQA Guidelines Section 15130. Other key principles established by this section include:

- A cumulative impact only occurs from impacts caused by the proposed Master Plans and other projects. An EIR should not discuss impacts that do not result from the proposed Master Plans.
- When the combined cumulative impact from the increment associated with the proposed Master Plans and other projects is not significant, an EIR need only briefly explain why the impact is not significant; detailed explanation is not required.
- An EIR may determine that a project’s contribution to a cumulative effect impact would be rendered less than cumulatively considerable if a project is required to implement or fund its fair share of mitigation intended to alleviate the cumulative impact.

The cumulative impact analysis that follows relies on these principles as the basis for determining the significance of the proposed Master Plans’ cumulative contribution to various impacts.

### 4.2.1 - Aesthetics, Light, and Glare

The geographic scope of the cumulative aesthetics, light, and glare analysis is the area surrounding the Master Plan boundaries. This is the area within view of the project; therefore, the area most likely to experience changes in visual character or experience light and glare impacts.

The proposed Master Plans consists of the development of up to 5,086 dwelling units and 7.7 million square feet of non-residential uses and associated infrastructure on approximately 1,227 acres. The proposed Master Plans' would employ a Modern Mission architectural theme to promote a cohesive, unique design.

The Master Plan boundaries is located within an area that contains existing urban development, including the Keystone Pacific Business Park and Patterson Gardens residential development. The proposed Master Plans would be guided by design standards for architecture, landscaping, signage, and similar items. Adherence to the Master Plan's standards would ensure that the project would be compatible with the existing visual character of the project vicinity and not impair views of the Diablo Range from existing developed parts at Patterson.

As shown in Table 4-1, there are several other development projects in the project vicinity that have the potential to alter the visual character of the area. These projects would be subject to design and landscaping requirements to ensure that they do not degrade visual character and comply with applicable General Plan and Zoning Ordinance standards.

The proposed Master Plans would introduce new sources of light and glare to the project vicinity. As previously noted, the proposed Master Plans would include standards for exterior lighting fixtures and illuminated signage. Adherence to the Master Plan's standards would ensure that the project's new sources of light and glare would be limited to appropriate areas and avoid creating substantial spillover effects. Thus, it can be reasoned that surrounding land uses would not be exposed to substantial sources of light and glare from the proposed Master Plans. Other projects that propose new sources of illumination would be required to demonstrate that spillover effects are avoided or minimized to the maximum extent feasible. As such, the proposed Master Plans would not have the potential to have a cumulative contribution to a light and glare impact.

### 4.2.2 - Agricultural Resources

The geographic scope of the cumulative agricultural resources analysis is Stanislaus County. Agricultural resources are evaluated here in the context of countywide resources, because the City has adopted a number of policies and plans that are designed to facilitate smart growth and preserve agricultural resources within its boundaries, with a view toward how such growth sits in the context of the surrounding unincorporated areas; therefore, it is appropriate to use this as the basis for assessing cumulative impacts.

Several of the projects listed in Table 4-1 would occur on land mapped as Important Farmland and, therefore, would have the potential to convert farmland to non-agricultural use. The proposed Master Plans would convert 1,034 acres of Important Farmland to urban uses. Most of the Master Plan boundaries listed in Table 4-1 are within the current or future boundaries of the City of

Patterson and therefore are contemplated for urban development. (Note that Diablo Grande and Crows Landing Industrial Business Park are outside of the Patterson city limits and Planning Area.) The EIR for the City of Patterson General Plan found that conversion of prime agricultural land, including the Master Plan boundaries, to urban uses to be a significant and unavoidable impact. As part of adopting the City General Plan, the Patterson City Council adopted findings of fact and a statement of overriding consideration indicating that urban development was of greater benefit to the community than preserving agricultural land within city limits. Although conversion of the project area to urban uses would reflect the land use assumptions contained in the City of Patterson General Plan, farmland is an important resource to the region, and direct conversion of Important Farmland to urban land uses would be considered a significant impact under LESA methodology. Mitigation is proposed requiring the preservation of Important Farmland at a 1:1 ratio; however, the mitigation does not provide certainty that net new Important Farmland acreage would be created or the productivity of existing non-Important Farmland could be improved such that it could be re-classified as Important Farmland. Other projects may also be required to mitigate for the conversion of Important Farmland. Similar to the proposed Master Plans, mitigation may not provide certainty regarding the availability of Important Farmland. As such, the proposed Master Plans would contribute to cumulative impacts on conversion of Important Farmland.

The project in combination with the buildout of past, present, and probable future projects would not create pressure to prematurely convert adjacent farmland to non-agricultural uses. All of the lands immediately adjacent to the Master Plan boundaries are within the Patterson General Plan Planning Area or are currently within the Patterson city limits, signifying that they are ultimately anticipated to be converted to urban use at some point in the future. Furthermore, it would be expected that the farmland areas west and north of the Master Plan boundaries would not convert to urban use until after the proposed Master Plans is built out, which is expected to take 20 years. The proposed Master Plans and probable future projects therefore do not combine to create a significant cumulative effect.

### 4.2.3 - Air Quality

The geographic scope of the cumulative air quality analysis is the San Joaquin Valley Air Basin, which encompasses all or portions of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern counties. Air pollution is regarded as a regional issue; therefore, this would be the area most likely to be impacted by project emissions.

The San Joaquin Valley Air Pollution Control District (Valley Air District) air quality plan uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then vehicle miles traveled (VMT), which are then provided to the Valley Air District to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP were based on land uses and growth projections from area general plans. These emissions form the emissions budget used by the Valley Air District to demonstrate air quality conformity for the Regional Transportation Plan. The future emissions, combined with emissions from all other sources, are modeled in the Valley Air District's regional air quality models to determine the reductions required to attain the air quality standards by the applicable federal deadline. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

Although the proposed Master Plans are significant with the growth projections contained in the City of Patterson General Plan, it is not necessarily consistent with the projections contained in the AQPs because adoption of the General Plan occurred after the latest AQPs were adopted. As such, the proposed Master Plans is not consistent with the AQP. Other projects may or may not be consistent with the land use and growth projections set forth in the applicable General Plan. Because the proposed Master Plans is not consistent with the growth assumptions contained in the AQPs, it would have a cumulative contribution to inconsistency with the clean air plans.

All of the projects listed in Table 4-1 would result in new air emissions during construction or operations (or both). The proposed Master Plans would emit construction and operational emissions at levels that would not exceed the Valley Air District thresholds after the implementation of feasible emissions reductions measures. Other projects that exceed Valley Air District thresholds would also be required to implement feasible emissions reductions measures. Because the proposed Master Plans' emissions would not exceed Valley Air District thresholds, it would not cumulatively contribute to impacts related to air quality violations.

All of the projects listed in Table 4-1 would result in some net increase of criteria pollutants for which the Air Basin is classified as "nonattainment." Because of the size and scope of the proposed Master Plans, its net increase is considered cumulatively considerable. Emissions of criteria pollutants from other projects may or may not be considered cumulatively considerable. Because the proposed Master Plans' net increase is cumulatively considerable, it would have a cumulative contribution to nonattainment of criteria pollutants.

All other project air quality impacts were found to be less than significant and did not require mitigation (e.g., sensitive receptors). Other projects that result in similar impacts would be required to mitigate for their impacts. Because the proposed Master Plans can mitigate all of these remaining air quality impacts to a level of less than significant, it would not have a related cumulative considerable impact.

#### **4.2.4 - Biological Resources**

The geographic scope of the cumulative biological resources analysis is the project vicinity. Biological impacts in an agricultural setting, where foraging habitats and similar areas are disrupted by farming activities, tend to be localized. Therefore, the area near the Master Plan boundaries would be the area most affected by project activities (generally within a 0.5-mile radius).

Potential project-level impacts on special-status plants and wildlife are limited to the burrowing owl, loggerhead shrike, migratory birds, Swainson's hawk, San Joaquin kit fox, and western red and hoary bats; therefore, the project would not have the potential to contribute to the cumulative loss of any other special-status plant or wildlife species. The proposed Master Plans would implement standard mitigation for the previously mentioned special-status species, which would involve pre-construction surveys, and if necessary, implementation of avoidance measures, which would reduce impacts to a level of less than significant. Most of the other projects listed in Table 4-1 are located within the City of Patterson and, therefore, would be required to mitigate for impacts on special-status species in a manner similar to the proposed Master Plans. As such, the proposed Master Plans, in conjunction

with other projects, would not have a cumulatively considerable contribution to impacts on special-status species.

#### 4.2.5 - Cultural Resources

The geographic scope of the cumulative cultural resources analysis is the project vicinity. Cultural resource impacts tend to be localized because the integrity of any given resource depends on what occurs only in the immediate vicinity around that resource, such as disruption of soils; therefore, in addition to the Master Plan boundaries itself, the area near the Master Plan boundaries would be the area most affected by project activities (generally within a 500-foot radius).

Construction activities associated with development projects in the project vicinity may have the potential to encounter undiscovered cultural resources. These projects would be required to mitigate for impacts through compliance with applicable federal and state laws governing cultural resources. Even if a significant cumulative impact could be found, the proposed Master Plans would not make a cumulatively considerable impact. Most of the Master Plan boundaries is used for agriculture and has been previously disturbed by agricultural activities such as disking and tilling of the soil. As such, the Master Plan boundaries is in a disturbed state, which limits the potential for undiscovered resources to be encountered.

The Master Plan boundaries contains several structures that are more than 50 years of age and may have historical significance. Mitigation is proposed requiring that these structures be assessed for historical significance and if found to be significant, the applicant must implement one of the following: a Historical American Building Survey, an interpretive exhibit describing the history of the site, relocation of the structure, or adaptive reuse of the structure. Other projects listed in Table 4-1 may contain potential historic resources. For those that do, they would be required to implement similar mitigation measures.

Although there is the possibility that previously undiscovered resources could be encountered by subsurface earthwork activities, the implementation of standard construction mitigation measures would ensure that undiscovered cultural resources are not adversely affected by project-related construction activities, which would prevent the destruction or degradation of potentially significant cultural resources in the project vicinity. Given the low potential for disruption, and the comprehensiveness of mitigation measures that would apply to this project and those in the vicinity, the residual, insignificant impacts of the projects would not combine to make a significant cumulative impact and, even if the combined impact was significant because of substantial resources on a different Master Plan boundaries, the proposed Master Plans would not make a cumulatively considerable contribution given previous disruptions to its ground and the lack of any known resource within its boundaries.

#### 4.2.6 - Geology, Soils, and Seismicity

The geographic scope of the cumulative geology, soils, and seismicity analysis is the project vicinity. Adverse effects associated with geologic, soil, and seismic hazards tend to be localized, and the area near the Master Plan boundaries would be the area most affected by project activities (generally within a 0.25-mile radius).

Development projects in the project vicinity may have the potential to be exposed to seismic hazards. However, there is a less than significant potential of the projects in combination to expose people or structure to substantial adverse effects, including the risk of loss, injury, or death in the event of a major earthquake; fault rupture; ground shaking; seismic-related ground failure; landslide; or liquefaction. There are no active or potentially active faults in the City or project area, and although the Master Plan boundaries might be exposed to strong ground shaking during an earthquake from faults that lie further afield, continued construction of buildings and other structures consistent with current development codes would minimize the potential for severe damage and loss of life. Seismic design criteria account for peak ground acceleration, soil profile, and other site conditions, and they establish corresponding design standards intended primarily to protect public safety and secondly to minimize property damage.

Regarding liquefaction and soil stability, the topography of the Master Plan boundaries and the sites of the projects listed in Table 4-1 is relatively flat. Groundwater occurs at depths greater than 15 feet below surface, which makes the likelihood of liquefaction remote. Thus, there is little potential of projects to cumulatively contribute to liquefaction and soil stability impact, and thus a less than significant cumulative impact would result.

Regarding soil erosion, groundbreaking could lead to increased erosion rates on-site soils, which could cause unstable ground surfaces and increased sedimentation in nearby streams and drainage channels. However, project construction activities would implement standard stormwater pollution prevention mitigation measures to ensure that earthwork activities do not result in substantial erosion off-site. This mitigation, in turn, would have to comply with the National Pollution Discharge Elimination System (NPDES) stormwater permitting program, which regulates water quality originating from construction sites. The NPDES program, which governs projects statewide (and nationwide), requires the preparation and implementation of Stormwater Pollution Prevention Programs for construction activities that disturb more than 1 acre, and the implementation of Best Management Practices that ensure the reduction of pollutants during stormwater discharges, as well as compliance with all applicable water quality requirements. Thus, given the proposed Master Plans and nearby projects would have to comply with federal and state regulations that are designed to minimize impacts to projects on a wide geographic scale, this project would make no cumulatively considerable contribution to any significant cumulative impact.

#### **4.2.7 - Greenhouse Gas Emissions**

The geographic scope of the cumulative greenhouse gas (GHG) emissions analysis is the San Joaquin Valley Air Basin, which encompasses all or portions of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern counties. Air pollution is regarded as a regional issue; therefore, this would be the area most likely to be impacted by project emissions.

The projects listed in Table 4-1 would emit new GHG emissions. The proposed Master Plans was found to exceed the adopted GHG emissions per capita and, therefore, would have a significant unavoidable impact. Other projects, despite any unavoidable impact, would also be required to incorporate appropriate measures meet this target to the extent feasible. The proposed Master Plans would have a related cumulative considerable impact

Future development projects in the PG&E service area would be required to comply with Title 24 energy efficiency standards. At buildout, the proposed Master Plans would demand an estimated 150 million kWh of electricity on an annual basis and 386 million cubic yards of natural gas on an annual basis. The proposed Master Plan's structures would be designed in accordance with Title 24, California's Energy Efficiency Standards for Residential and Nonresidential Buildings. These standards include minimum energy efficiency requirements related to building envelope, mechanical systems (e.g., heating, ventilation, and air conditioning (HVAC) and water heating systems), indoor and outdoor lighting, and illuminated signs. The incorporation of the Title 24 standards and other energy conservation measures into the project would ensure that the project would not result in the inefficient, unnecessary, or wasteful consumption of energy. Therefore, the proposed Master Plans, in conjunction with other future projects, would not have a cumulatively considerable impact on energy consumption.

#### 4.2.8 - Hazards and Hazardous Materials

The geographic scope of the cumulative hazards and hazardous materials analysis is the project vicinity, which includes areas within a 0.50-mile radius of the Master Plan boundaries. Adverse effects of hazards and hazardous materials tend to be localized because the impacts of spills and releases usually do not travel beyond 0.50 mile. Therefore, the area near the Master Plan boundaries would be the area most affected by project activities.

The Master Plan boundaries contain structures that predate the federal bans on asbestos-containing building materials, lead-based paint and, therefore, mitigation is proposed requiring assessment and, if present, proper abatement of these materials. Additionally, the proposed Master Plans' operational characteristics would not involve the use, storage, transport, or disposal of large quantities of hazardous materials. As such, the proposed Master Plans would not have any significant impacts on hazards or hazardous materials. Other projects that may result in potential exposure to hazardous materials would be required to implement mitigation measures to protect public health and safety. However, most of the projects listed in Table 4-1 would not involve the use large quantities of hazardous materials during operations or involve characteristics that could expose surrounding land uses to hazardous air emissions or materials, since surrounding projects involve non-intensive uses such as residential, professional commercial, light industrial, and no heavy manufacturing or refining activities, which precludes the likelihood of significant impacts. Therefore, the proposed Master Plans, in conjunction with other projects, would not have a cumulatively considerable contribution.

#### 4.2.9 - Hydrology and Water Quality

The geographic scope of the cumulative hydrology and water quality analysis is the Patterson area. Hydrologic and water quality impacts concern local waterways and groundwater sources, which affect the greater Patterson area.

The proposed project could, in conjunction with other projects within the City and surrounding area, contribute urban runoff pollutants to downstream receiving waters, resulting in degradation of water quality in Salado Creek and San Joaquin River. The proposed project would incorporate SWPPP controls during construction. Post-construction, runoff will be directed to recharge facilities in the

Zacharias planning area. In addition, BMP, LID and stormwater treatment measures to control and treat stormwater runoff post-construction per NPDES Phase II Permit requirements would be implemented in the project area. Similarly, other developments within the City of Patterson would be required to comply with these regulations. As a result of compliance with the NPDES Phase II Permit, development within or near the City of Patterson, including the proposed project, would result in a less-than-significant cumulative impact to water quality and hydrology.

The proposed project could, in conjunction with other projects within the City and surrounding area, contribute flood waters to downstream receiving waters, resulting in degradation of water quality in Salado Creek and San Joaquin River. Preliminary drainage plans for the Zacharias planning area indicate that stormwater runoff would be retained or detained within the project area in a series of bioswales, basins, lakes and a recharge basin which together would accommodate the 100-year flood event, which exceeds compliance with City requirements. In addition, the Baldwin planning area would detain the 10-year flood event in compliance with City requirements. The proposed flood control retention basin along the Del Puerto Creek would collect flood flows that currently spread across the Zacharias planning area as well as further south-southeast, affecting parts of the City. The inclusion of this basin into the project contributes to an improvement in flood conditions in the project area and the City. Similar measures implemented within other projects, as required by the City and the NPDES Phase II Permit, would result in a less than significant cumulative impacts related to flooding. As a result of compliance with State and City requirements, the cumulative effects from the proposed and other potential projects would result in a less than significant cumulative impact to flooding.

The proposed project could, in conjunction with other projects within the City and surrounding area, degrade groundwater supply or quality in the Delta-Mendota Subbasin. The City's Water Management Plan and the Water Supply Assessment concluded that cumulatively, the City has sufficient available supply to support the project and all cumulative projects without negatively impacting groundwater resources in the Delta-Mendota Subbasin from which the City draws its supply. In addition, the Northern & Central Delta-Mendota Groundwater Sustainability Plan Group (of which the City of Patterson is a member) submitted a Groundwater Sustainability Plan (GSP 2019) that describes measures and actions needed to achieve long-term sustainability of both the upper and lower groundwater aquifers, as required by 2040, and to stay in compliance with Sustainable Groundwater Management Act. Conservation measures for new developments as required by the City and implementation of measures in the Northern & Central Delta-Mendota Groundwater Sustainability Plan as required by Sustainable Groundwater Management Act, would result in a less than less-than-significant cumulative impacts related to groundwater use.

#### 4.2.10 - Land Use

The geographic scope of the cumulative land use analysis is the City of Patterson General Plan Planning Area. Land use decisions are made at the City level; therefore, the City of Patterson General Plan Planning Area is an appropriate geographic scope.

Impacts involving land use plans or policies would not combine to result in cumulative impacts. The determination of significance for impacts related to whether a project would conflict with any

applicable land use plan or policy is addressed on a project-by-project basis, as required by California land use and planning law, and the Patterson Municipal Code.

The proposed Master Plans consists of the development of up to 5,086 dwelling units and 7.7 million square feet of non-residential uses and associated infrastructure on approximately 1,227 acres. The proposed Master Plans' land use activities are consistent with the intended uses of the City of Patterson's General Plan and the Zoning Ordinance's zoning districts. As such, the proposed Master Plans would be consistent with the General Plan and Municipal Code, and there is no other envisioned plan which would make the proposed Master Plans less consistent than when examined individually.

Thus, the proposed Master Plans, in conjunction with other planned or approved projects, would not have a cumulatively considerable impact on land use.

#### 4.2.11 - Noise

The geographic scope of the cumulative noise analysis is the project vicinity, including surrounding sensitive receptors. Noise impacts tend to be localized because ambient noise generally tends to dissipate within 0.25 mile, and existing noise from roadways tends to have a canceling effect on noise emanating from a Master Plan boundaries; that is, the logarithmic properties of noise and distance usually mean there are no additive effects. Therefore, the area near the Master Plan boundaries (generally 0.25 mile) would be the area most affected by project activities.

Construction activities associated with the proposed Master Plans would result in substantial sources of noise. As discussed in Section 3.11, Noise, the construction activities for proposed Master Plans would not exceed the noise thresholds for any receivers. The timing of construction activities associated with other development projects would overlap minimally, if at all, with the proposed Master Plans. Furthermore, because noise is a highly localized phenomenon, even if construction activities did overlap in time with the proposed Master Plans, the intervening distance and roadway noise would diminish any additive effects. Construction activities at these other planned and approved projects would be required to take place during daytime hours, and the City and project applicant would be required to evaluate construction noise impacts and implement mitigation, if necessary, to minimize noise impacts. Given these distances and the intervening structures and vegetation, no significant cumulative construction noise impact would be expected. Therefore, it is reasonable to conclude that construction noise from the proposed Master Plans would not combine with noise from other development projects to cause cumulatively considerable noise impacts.

The proposed Master Plans' construction and operational vibration levels would not exceed annoyance thresholds. Because vibration propagates in waves through the soil, multiple pieces of equipment operating simultaneously would each produce vibration waves in different phases that typically would not increase the magnitude of the vibration. Furthermore, vibration is a highly localized phenomenon, and tends to dissipate to insignificant levels within dozens of feet, as explained in Section 3.10, Noise; thus, there would be no possibility for vibration associated with the project to combine with vibration from other projects because of their distances from the Master

Plan boundaries. Therefore, the proposed Master Plans would not contribute to a cumulatively considerable vibration impact.

As discussed in Section 3.11, Noise, the proposed Master Plan's vehicular trips would not make a substantial incremental contribution to ambient noise levels. These noise levels account for existing vehicle trips as well as vehicle trips from future projects. Mitigation is proposed requiring that residential units within the Zacharias Master Plan include mechanical ventilation systems to allow the residents the option of closing windows to avoid exposure to excessive roadway noise. Other projects would be required to evaluate roadway noise and, if necessary, mitigate for such impacts. The proposed Master Plans' contribution to off-site vehicular noise levels would not exceed the applicable thresholds of significance, which take into account the existing noise levels and future 2035 without project noise levels. Thus, the proposed Master Plans would not contribute to a cumulatively considerable increase in ambient roadway noise.

As discussed in Section 3.10, Noise, non-transportation noise may exceed significance thresholds at any receivers. These noise levels account for existing noise sources as well as noise from future projects. Mitigation is proposed requiring that noise attenuating measures be implemented to reduce residential exposure to non-transportation noise. Other projects would be required to mitigate for non-transportation noise impacts at nearby sensitive receptors in accordance with City standards. As such, the proposed Master Plans, in conjunction with other projects, would not make a cumulatively considerable contribution to any permanent increases in ambient noise levels associated with stationary noise sources in the project vicinity.

#### **4.2.12 - Population and Housing**

The geographic scope of the cumulative population and housing analysis is the City of Patterson.

The proposed Master Plans is anticipated to add 19,988 new residents and 8,670 employees to Patterson population and workforce at buildout. The City of Patterson General Plan projects a buildout population of 66,673 persons sometime after 2030 or an increase of more than 46,000 persons over the same time period that the proposed Master Plans would be built out. As such, the proposed Master Plans would likely employ Patterson residents and would not require substantial amounts of employees to relocate to Patterson. Furthermore, the proposed Master Plans is consistent with the Patterson General Plan Land Use designations and therefore growth resulting from development of the project area is anticipated. Other projects included in Table 4-1 may result in population growth; however, they would be required to demonstrate consistency with their respective land use designations and therefore would be consistent with planned growth. As such, the proposed Master Plans, in conjunction with other projects, would not have a cumulatively considerable impact on population or housing.

#### **4.2.13 - Public Services and Recreation**

The geographic scope of the cumulative public services analysis is the service area of each of the providers serving the proposed Master Plans. Because of differences in the nature of the public service and utility topical areas, they are discussed separately.

## **Fire Protection and Emergency Medical Services**

The geographic scope of the cumulative fire protection and emergency medical services analysis is the Patterson Fire Department service area, which encompasses the City of Patterson. Those projects listed in Table 4-1 that lie in the City of Patterson have the potential to combine with the project to create cumulative impacts.

Buildout of the proposed Master Plan would increase calls for service, thereby creating the need for additional personnel and a fire station. The project applicants would pay fire protection development fees. Other projects listed in Table 4-1 would be required to implement similar measures to ensure adequate levels of fire protection are maintained. As such, the proposed Master Plans, in conjunction with other projects, would not have a cumulatively considerable impact on fire protection and emergency medical services.

## **Police Department**

The geographic scope of the cumulative police protection analysis is the Patterson Police Services jurisdictional area, which encompasses the City of Patterson. Those projects listed in Table 4-1 that lie in the City of Patterson have the potential to combine with the project to create cumulative impacts.

Buildout of the proposed Master Plan would increase calls for service, thereby creating the need for additional personnel. The project applicants would pay police protection development fees. Other projects listed in Table 4-1 would be required to implement similar measures to ensure adequate levels of police protection are maintained. As such, the proposed Master Plans, in conjunction with other projects, would not have a cumulatively considerable impact on police services.

## **Schools**

The geographic scope of the cumulative school analysis is the Patterson Unified School District, which encompasses Patterson and surrounding unincorporated areas. Those projects listed in Table 4-1 that lie in the City of Patterson have the potential to combine with the project to create cumulative impacts.

Buildout of the proposed Master Plan would increase K-12 enrollment, thereby creating the need for additional classroom capacity. The project applicants would dedicate an elementary and middle school site to the School District as well as pay development fees. Other projects listed in Table 4-1 would be required to dedicate school sites or pay development fees. As such, the proposed Master Plans, in conjunction with other projects, would not have a cumulatively considerable impact on schools.

## **Parks**

The geographic scope of the cumulative park analysis is the City of Patterson. Those projects listed in Table 4-1 that lie in the City of Patterson have the potential to combine with the project to create cumulative impacts.

Buildout of the proposed Master Plan would increase demand for parks and recreation, thereby creating the need for additional parkland. The project applicants would dedicate more than 60 acres of new parkland as well as pay park fees. Other projects listed in Table 4-1 would be required to dedicate parkland or pay park fees to ensure adequate park and recreational facilities are maintained. As such, the proposed Master Plans, in conjunction with other projects, would not have a cumulatively considerable impact on parks.

#### **4.2.14 - Transportation**

The geographic scope of the cumulative transportation analysis is the roadway network shown in Exhibit 3.14-1, which largely consists of almost the entire City of Patterson and nearby unincorporated areas. All the new development projects listed in Table 4-1 would generate new vehicle trips that may trigger or contribute to unacceptable intersection operations. All projects would be required to mitigate for their fair share of impacts. At buildout, the proposed Master Plans would generate 7,047 trips during the weekday morning (AM) peak-hour and 8,047 trips during the weekday (PM) afternoon peak-hour. The proposed Master Plans would contribute trips to intersections that would operate at unacceptable levels during Existing Plus Approved Plus Project Traffic and to intersections and roadway segments that would operate at unacceptable levels during 2040 Cumulative Conditions. All feasible mitigation measures are proposed that would improve operations to acceptable levels. However, because there is uncertainty whether all necessary improvements would be fully funded and implemented as contemplated, the residual significance is significant and unavoidable. Therefore, the proposed Master Plans, in conjunction with other projects, would have a cumulatively considerable contribution to unacceptable intersection operations.

For other transportation-related areas, the proposed Master Plans would have significant impacts on alternative transportation. After the implementation of mitigation, these impacts would be reduced to a level of less than significant. Other projects that result in similar impacts would be required to mitigate for their impacts. Because the proposed Master Plans can mitigate all of its impacts to a level of less than significant, it would not have a related, cumulatively considerable impact.

#### **4.2.15 - Utilities and Service Systems**

##### **Water**

The geographic scope of the cumulative water analysis is the City of Patterson water service area, which encompasses the city limits.

At buildout, the proposed Master Plans are estimated to demand 1,560 acre-feet of water per year. A Water Supply Assessment was prepared by Woodard & Curran, which indicated that the proposed Master Plans' water demand would be within the City of Patterson's projected available supply through 2040, which accounts for demand from existing users and future growth. As such, adequate water supplies are anticipated to be available to serve the proposed Master Plans, as well as other projects in the service area. Nonetheless, because long-term water supply is a significant concern in California, the proposed Master Plans would reduce its demand on water supply through the implementation of indoor and outdoor water conservation measures. These measures would reduce

overall project demand for potable water and ensure that long-term water supply impacts are less than significant. All future projects also would be required to demonstrate that potable water supply sources are available, and these projects may be required to implement water conservation measures. Therefore, the proposed Master Plans, in conjunction with other planned and approved projects, would not have a cumulatively considerable impact on potable water supply.

### **Wastewater**

The geographic scope of the cumulative wastewater analysis is the Patterson water quality control facility service area, which collects wastewater from Patterson. Those projects listed in Table 4-1 that lie in the service area have the potential to combine with the project to exert cumulative impacts.

All future projects would be required to demonstrate that sewer service is available to ensure that adequate sanitation can be provided. At buildout, the proposed Master Plans would generate 1.006 million gallons of effluent per day. The Master Plan would provide sewer fees to the City for capital improvements to the City's Water Quality Control Facility to accommodate effluent. Patterson is currently planning for the expansion of the Water Quality Control Facility's treatment capacity. The increased capacity would be expected to provide adequate capacity to serve the projects listed in Table 4-1 within the service facility's service area. Therefore, the proposed Master Plans, in conjunction with other planned and approved projects, would not have a cumulatively considerable impact on wastewater.

### **Storm Drainage**

The geographic scope of the cumulative storm drainage analysis is the City of Patterson's storm drainage system, which generally encompasses lands within the city limits. Those projects listed in Table 4-1 that lie in the drainage system service area have the potential to combine with the project to exert cumulative impacts.

All future development projects in the project vicinity would be required to provide drainage facilities that collect and detain runoff such that off-site releases are controlled and do not create flooding. The proposed Master Plans would install on-site stormwater infrastructure that would provide adequate capacity for the proposed Master Plan's runoff. Therefore, the proposed Master Plans, in conjunction with other planned and approved projects, would not have a cumulatively considerable impact on storm drainage.

### **Solid Waste**

The geographic scope of the cumulative solid waste analysis comprises those projects contributing to the Fink Road Landfill near Crows Landing.

The landfill has a remaining capacity of 7.1 million cubic yards. Future development projects would generate construction and operational solid waste and, depending on the volumes and end uses, would be required to implement recycling and waste reduction measures. The proposed Master Plans is anticipated to generate 24,612 cubic yards of solid waste during construction and 6,530 cubic yards annually during operations. These values are conservative and do not adjust for construction and demolition debris recycling and curbside collection of recyclable materials and

green waste. These practices would divert substantial quantities of materials from the solid waste stream and contribute to conserving landfill capacity, thereby extending the operational life of such facilities. Thus, the contribution of the proposed Master Plans would not be cumulatively considerable.

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## SECTION 5: ALTERNATIVES TO THE PROPOSED PROJECT

### 5.1 - Introduction

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this Environmental Impact Report (EIR) contains a comparative impact assessment of alternatives to the proposed project. The primary purpose of this section is to provide decision makers and the general public with a reasonable number of feasible project alternatives that could attain most of the basic project objectives, while avoiding or reducing any of the project's significant adverse environmental effects. Important considerations for analysis of these alternatives are noted below (as stated in CEQA Guidelines Section 15126.6).

- An EIR need not consider every conceivable alternative to a project;
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process;
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives;
  - Infeasibility; or
  - Inability to avoid significant environmental effects.

#### 5.1.1 - Significant Unavoidable Impacts

The proposed project would result in the following significant unavoidable impacts:

- **Important Farmland:** Buildout of the proposed Master Plans would convert 1,246 acres of Important Farmland to non-agricultural use. Mitigation is proposed consisting of farmland preservation elsewhere in Stanislaus County; however, preservation would still result in the net loss of farmland. Therefore, the impact is significant and unavoidable.
- **Consistency with Air Quality Plan:** Buildout of the proposed Master Plans would result in ozone precursor and particulate matter emissions that would exceed adopted thresholds and, therefore, would be inconsistent with San Joaquin Valley Air Pollution Control District's air quality plan. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Cumulative Criteria Pollutant Emissions Impacts:** Buildout of the proposed Master Plans would result in ozone precursor and particulate matter emissions that would exceed adopted thresholds and, therefore, have a cumulatively considerable contribution to regional air pollution. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Greenhouse Gas Emissions Generation:** Buildout of the proposed Master Plans would result in greenhouse gas emissions that would exceed adopted thresholds. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.

- **Consistency with Greenhouse Gas Emissions Reduction Plan:** Buildout of the proposed Master Plans would result in greenhouse gas emissions that would exceed adopted thresholds and, therefore, would be inconsistent with State greenhouse gas reduction strategies. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Existing Plus Approved Plus Project Traffic Conditions:** The proposed Master Plans would contribute new vehicle trips to intersections, roadway segments, and freeway segments that would operate at unacceptable levels under Existing Plus Approved Plus Project Traffic Conditions. Mitigation is proposed consisting of improvements to affected facilities; however, in certain cases, it would not restore operations to acceptable levels or is considered uncertain because the facilities are outside the jurisdictional control of the City of Patterson. Therefore, the impact is significant and unavoidable.
- **2040 Cumulative Plus Project Traffic Conditions:** The proposed Master Plans would contribute new vehicle trips to intersections, roadway segments, and freeway segments that would operate at unacceptable levels under 2040 Cumulative Plus Project Traffic Conditions. Mitigation is proposed consisting of improvements to affected facilities; however, in certain cases, it would not restore operations to acceptable levels or is considered uncertain because the facilities are outside the jurisdictional control of the City of Patterson. Therefore, the impact is significant and unavoidable.

### 5.1.2 - Alternatives to the Proposed Project

The four alternatives to the proposed project analyzed in this section are as follows:

- **No Project Alternative:** Neither the Baldwin Master Plan nor the Zacharias Master Plan would be implemented, and the planning areas would continue their existing agricultural land use activities within unincorporated Stanislaus County.
- **Zacharias Master Plan Only Alternative:** The Zacharias Master Plan would be implemented as contemplated and the Baldwin Master Plan would not be implemented.
- **Reduced Density Alternative:** A 25 percent reduction would be applied to the buildout potential of both the Baldwin Master Plan and the Zacharias Master Plan; however, the boundaries of the Master Plans would remain the same.
- **Ivy Avenue Connection Alternative:** Both the Baldwin Master Plan and the Zacharias Master Plan would be implemented as contemplated, but Ivy Avenue would provide a through connection between Ward Avenue and the Patterson Irrigation District (PID) Lateral M Canal.

Four alternatives to the proposed project are analyzed below. These analyses compare the proposed project to each individual project alternative. In several cases, the description of the impact may be the same under each alternative when compared with the CEQA Thresholds of Significance (i.e., both the project and the alternative would result in a less than significant impact). The actual degree of impact may be slightly different between the proposed project and each alternative, and this relative difference is the basis for a conclusion of greater or lesser impacts.

## 5.2 - Project Objectives

As stated in Section 2, Project Description, the objectives of the proposed project are to:

1. Promote positive contribution to the local and regional economy through new capital investment, creation of new employment and housing opportunities, and expansion of the tax base.
2. Develop a mix of new residential uses in proximity to a regional job center.
3. Continue to attract new businesses to the City of Patterson by providing adequate, available land and infrastructure.
4. Facilitate buildout of the City of Patterson General Plan.
5. Maintain a high quality of life in the City of Patterson through the provision of schools, parks, open spaces, and trails in residential areas.
6. Facilitate the development of the South County Corridor by reserving land for the future alignment of this transportation corridor and limiting new connections from the Master Plan area.
7. Promote land use compatibility with the Ranchette area by appropriately citing roadway connections and affording property owners the option of maintaining their existing land use activities or developing low density residential uses.
8. Ensure that the Patterson city limits are expanded in an orderly and logical manner.
9. Avoid the premature conversion of viable agricultural land through the use of buffers and by affording property owners the ability to continue to farm their land until the time is right for development.
10. Work with PID and WSID to protect groundwater resources and their irrigation canals as the Master Plan area transitions from agricultural/rural residential to urban use.

## 5.3 - Alternative 1—No Project Alternative

CEQA Guidelines 15126.6(e) requires EIRs to evaluate a ‘No Project’ alternative, which is the “circumstance under which the project does not proceed.” The purpose is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.

Because the Master Plan areas are currently in agricultural production—an economically viable land use activity—the No Project Alternative entails the continuation of these land use activities for the foreseeable future. As such, the Master Plan areas would remain in unincorporated Stanislaus County and retain its current agricultural land use designations.

### 5.3.1 - Impact Analysis

The Master Plan areas would remain in agricultural production for the foreseeable future. As such, this alternative would avoid all of the proposed project’s significant unavoidable impacts and potentially significant impacts that can be reduced to a level of less than significant after mitigation.

### 5.3.2 - Conclusion

The No Project Alternative would avoid all of the proposed project’s significant unavoidable impacts and significant impacts that can be mitigated to a level of less than significant.

The No Project Alternative would not advance any of the project objectives. For example, it would not (1) promote positive contribution to the local and regional economy; (2) develop a mix of new residential uses near a regional job center; (3) attract new businesses to Patterson; (4) facilitate buildout of the City of Patterson General Plan; (5) maintain a high quality of life through provision of schools, open spaces, and trails; and (6) facilitate the development of the South County Corridor.

## 5.4 - Alternative 2—Zacharias Master Plan Only Alternative

Under the Zacharias Master Plan Only Alternative, the Zacharias Master Plan would be implemented as contemplated and the Baldwin Master Plan would not be pursued. The Zacharias Master Plan contemplates 4,781 dwelling units, 7,765,000 square feet of nonresidential uses, two schools, and 59 acres of parks. The 1,161-acre Zacharias Master Plan area would be annexed into the City of Patterson while the 66-acre Baldwin Master Plan area would remain in unincorporated Stanislaus County.

Table 5-1 summarizes the Zacharias Master Plan Only Alternative. The purpose of the Zacharias Master Plan Only Alternative is to evaluate the Master Plan is that is expected to develop first.

**Table 5-1: Zacharias Master Plan Only Alternative**

Scenario	Acres	Dwelling Units	Non-Residential	Other Characteristics
Zacharias Master Plan Only Alternative	1,161	4,781	7,765,000	2 schools (elementary and middle); 59 acres of parks
Proposed Project	1,227	5,086	7,765,000	2 schools (elementary and middle); 63 acres of parks
<b>Difference</b>	<b>(66)</b>	<b>(305)</b>	<b>–</b>	<b>(4 acres of parks)</b>

Source: FCS 2020.

### 5.4.1 - Impact Analysis

#### Aesthetics, Light, and Glare

This alternative would result in the development of the Zacharias Master Plan as contemplated by the proposed project and the elimination of the Baldwin Master Plan. The proposed project was

found to have a less than significant impact on aesthetics, light, and glare, because the Master Plans set forth design standards and guidelines that provide certainty that visual character would not be degraded and that new sources of light and glare would not adversely affect daytime or nighttime views. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of light and glare impacts. Therefore, this alternative would have less impact on aesthetics, light, and glare than the proposed project.

### **Agricultural Resources**

The proposed project was found to have a significant unavoidable impact on agricultural resources. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity but would not necessarily avoid all agricultural resources impacts associated with the project as proposed. Therefore, this alternative would have less impact on agricultural resources than the proposed project.

### **Air Quality**

The proposed project was found to have a significant unavoidable impact on air quality from construction and operational emissions. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity but not necessarily avoid of air quality impacts associated with the project as proposed. Therefore, this alternative would have less impact on air quality than the proposed project.

### **Biological Resources**

The proposed project was found to have a significant impact on biological resources that could be mitigated to a level of less than significance. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of biological resources impacts. Therefore, this alternative would have less impact on biological resources than the proposed project.

### **Cultural Resources**

The proposed project was found to have a significant impact on cultural resources that could be mitigated to a level of less than significance. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of cultural resources impacts. Therefore, this alternative would have less impact on cultural resources than the proposed project.

### **Geology, Soils, and Seismicity**

The proposed project was found to have a significant impact on geology, soils, and seismicity that could be mitigated to a level of less than significance. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed

project, it would further lessen the severity of geology, soils, and seismicity impacts. Therefore, this alternative would have less impact on geology, soils, and seismicity than the proposed project.

### **Greenhouse Gas Emissions**

The proposed project was found to have a significant unavoidable impact on greenhouse gas emissions from construction and operational emissions that cannot be mitigated to a level of less than significant. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of greenhouse gas emissions impacts. Therefore, this alternative would have less impact on greenhouse gas emissions than the proposed project.

### **Hazards and Hazardous Material**

The proposed project was found to have a significant impact on hazards and hazardous materials that could be mitigated to a level of less than significance. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of hazards and hazardous materials impacts. Therefore, this alternative would have less impact on hazards and hazardous materials than the proposed project.

### **Hydrology and Water Quality**

The proposed project was found to have a significant impact on hydrology and water quality that could be mitigated to a level of less than significance. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of hydrology and water quality impacts. Therefore, this alternative would have less impact on hydrology and water quality than the proposed project.

### **Land Use**

The proposed project was found to have a less than significant impact on land use. The removal of the Baldwin Master Plan would reduce the annexation by 66 acres, which would further lessen the severity of land use impacts. Therefore, this alternative would have less impact on land use than the proposed project.

### **Noise**

The proposed project was found to have a significant impact on noise from construction and operational activities that could be mitigated to a level of less than significant. Because the Zacharias Master Plan Only Alternative would result in a reduction of 66 acres and 305 dwelling units relative to the proposed project, it would further lessen the severity of noise impacts. Therefore, this alternative would have less impact on noise than the proposed project.

### **Population and Housing**

The proposed project was found to have a less than significant impact on population and housing. The removal of the Baldwin Master Plan would reduce the buildout population, which would further

lessen the severity of population and housing impacts. Therefore, this alternative would have less impact on population and housing than the proposed project.

**Public Services and Recreation**

The proposed project was found to have a less than significant impact on public services and recreation. The removal of the Baldwin Master Plan would reduce the buildout population, which would further lessen the severity of public services and recreation impacts. Therefore, this alternative would have less impact on public services and recreation than the proposed project.

**Transportation**

Table 5-2 summarizes the trip generation of the Zacharias Master Plan Only Alternative as compared to the proposed project. The proposed project was found to have significant unavoidable impacts associated with intersection, roadway, and freeway operations. Because the Zacharias Master Plan Only Alternative would generate fewer peak hour trips relative to the proposed project, it would further lessen the severity but not necessarily avoid the proposed project’s significant unavoidable transportation impacts. Therefore, this alternative would have less impact on transportation than the proposed project.

**Table 5-2: Zacharias Master Plan Only Alternative Trip Generation**

Scenario	Peak Hour Trip Generation	
	AM	PM
Zacharias Master Plan Alternative	6,865	7,825
Proposed Project	7,047	8,047
<b>Difference</b>	<b>(182)</b>	<b>(222)</b>
Source: AMG 2020.		

**Utilities and Service Systems**

The proposed project was found to have a less than significant impact on utilities and service systems. The removal of the Baldwin Master Plan would reduce the buildout population, which would further lessen the severity of utilities and service systems impacts. Therefore, this alternative would have less impact on utilities and service systems than the proposed project.

**5.4.2 - Conclusion**

The Zacharias Master Plan Only Alternative would advance all of the project objectives, although some would be advanced to a lesser degree than the proposed project. For example, it would (1) promote positive contribution to the local and regional economy by creating new housing opportunities and jobs, but the 305 fewer dwelling units would not (2) develop a mix of new residential uses near a regional job center to same degree as the proposed project. However, it would fully advance the project objectives associated with (3) attracting new businesses to Patterson; (4) facilitating buildout of the City of Patterson General Plan; (5) maintaining a high quality

of life through provision of schools, open spaces, and trails; and (6) facilitating the development of the South County Corridor.

### 5.5 - Alternative 3—Reduced Density Alternative

Under the Reduced Density Alternative, a 25 percent reduction would be applied to the buildout values of both the Baldwin Master Plan and Zacharias Master Plan. This would result in 3,815 dwelling units and 5,823,000 square feet of non-residential uses. The two school sites would be developed under this alternative. To offset the reduction in development, 75 acres of parks would be developed within the Master Plan boundaries, which would allow both Master Plans to satisfy their parkland development requirements.

Table 5-3 summarizes the Reduced Density Alternative. The purpose of the Reduced Density Alternative is to evaluate an alternative that reduces the buildout potential of the Master Plans in the interests of avoiding or reducing impacts associated with air pollution, traffic congestion, and water consumption.

**Table 5-3: Reduced Density Alternative**

Scenario	Acres	Dwelling Units	Non-Residential	Other Characteristics
Reduced Density Alternative	1,227	3,815	5,823,000	2 schools (elementary and middle); 75 acres of parks
Proposed Project	1,227	5,086	7,765,000	2 schools (elementary and middle); 63 acres of parks
<b>Difference</b>	–	<b>(1,271)</b>	<b>(1,942,000)</b>	<b>12 acres of parks</b>

Source: FCS 2020.

#### 5.5.1 - Impact Analysis

##### Aesthetics, Light, and Glare

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a less than significant impact on aesthetics, light, and glare, because the Master Plans set forth design standards and guidelines that provide certainty that visual character will not be degraded and that new sources of light and glare would not adversely affect daytime or nighttime views. Because this alternative would occupy the same footprint as the proposed project, it would have the same amount of disturbance as the proposed project and would have a similar amount of change to the visual landscape. Therefore, this alternative would have a similar impact on aesthetics, light, and glare than the proposed project.

## **Agricultural Resources**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant unavoidable impact on agricultural resources. Because this alternative would occupy the same footprint as the proposed project, it would have the same amount of disturbance as the proposed project and would result in an equivalent conversion of agricultural land to non-agricultural use. Therefore, this alternative would have similar impact on agricultural resources as the proposed project.

## **Air Quality**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant unavoidable impact on air quality from criteria and toxic air contaminant emissions. Because this alternative would have a smaller buildout potential, it would reduce the severity of, but not necessarily avoid, the proposed project's significant unavoidable air quality impacts. Therefore, this alternative would have less impact on air quality than the proposed project.

## **Biological Resources**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant impact on biological resources that could be mitigated to a level of less than significance. Because this alternative would occupy the same footprint as the proposed project, it would disturb the same amount of acreage, and would have the same biological resources impacts. Therefore, this alternative would have similar impact on biological resources as the proposed project.

## **Cultural Resources**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant impact on cultural resources that could be mitigated to a level of less than significance. Because this alternative would occupy the same footprint as the proposed project, it would disturb the same amount of acreage, and would have the same cultural resources impacts. Therefore, this alternative would have similar impact on cultural resources as the proposed project.

## **Geology, Soils, and Seismicity**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant impact on geology, soils, and seismicity that could be mitigated to a level of less than significance. Because this alternative would occupy the same footprint as the proposed project, it would disturb the same amount of acreage, and would have the same geology, soils, and seismicity impacts. Therefore, this alternative would have similar impact on geology, soils, and seismicity as the proposed project.

## **Greenhouse Gas Emissions**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant unavoidable greenhouse gas emissions impacts from construction and operational activities that cannot be mitigated to a level of less than significant. Because this alternative would have a smaller buildout potential, it would reduce the severity of greenhouse gas emissions impacts. Therefore, this alternative would have less impact on greenhouse gas emissions than the proposed project.

## **Hazards and Hazardous Material**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant impact on hazards and hazardous materials that could be mitigated to a level of less than significance. Because this alternative would occupy the same footprint as the proposed project, it would disturb the same amount of acreage, and would have the same hazards and hazardous materials impacts. Therefore, this alternative would have similar impact on hazards and hazardous materials as the proposed project.

## **Hydrology and Water Quality**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant impact on hydrology and water quality that could be mitigated to a level of less than significance. Because this alternative would occupy the same footprint as the proposed project, it would disturb the same amount of acreage, and would have the same hydrology and water quality impacts. Therefore, this alternative would have similar impact on hydrology and water quality as the proposed project.

## **Land Use**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a less than significant impact on land use. This alternative would occupy the same footprint as the proposed project and would affect the same amount of acreage as the proposed project. Therefore, this alternative would have similar impact on land use as the proposed project.

## **Noise**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a significant impact on noise from construction and operational activities that could be mitigated to a level of less than significant. Because this alternative would have a smaller buildout potential, it would reduce the severity of noise impacts. Therefore, this alternative would have less impact on noise than the proposed project.

## **Population and Housing**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a less than

significant impact on population and housing. This alternative would reduce the buildout population, which would further lessen the severity of population and housing impacts. Therefore, this alternative would have less impact on population and housing systems than the proposed project.

**Public Services and Recreation**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a less than significant impact on public services and recreation. This alternative would reduce the buildout population, which would further lessen the severity of public services and recreation impacts. Therefore, this alternative would have less impact on public services and recreation than the proposed project.

**Transportation**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. Table 5-4 summarizes the trip generation of the Reduced Density Alternative as compared to the proposed project. The proposed project was found to have significant unavoidable impacts associated with intersection, roadway, and freeway operations. Because the Reduced Density Alternative would generate fewer peak hour trips relative to the proposed project, it would further lessen the severity but not necessarily avoid the proposed project’s significant unavoidable transportation impacts. Therefore, this alternative would have less impact on transportation than the proposed project.

**Table 5-4: Reduced Density Alternative Trip Generation**

Scenario	Peak-hour Trip Generation	
	AM	PM
Reduced Density Alternative	5,479	6,987
Proposed Project	7,047	8,047
<b>Difference</b>	<b>(1,568)</b>	<b>(1,086)</b>
Source: AMG, 2020.		

**Utilities and Service Systems**

This alternative would result in a 25 percent reduction in buildout potential but would occupy the same footprint as the proposed project. The proposed project was found to have a less than significant impact on utilities and service systems. This alternative would reduce the buildout population, which would further lessen the severity of utilities and service systems impacts. Therefore, this alternative would have less impact on utilities and service systems than the proposed project.

**5.5.2 - Conclusion**

The Reduced Density Alternative would advance all of the project objectives, but to a lesser degree than the proposed project. For example, it would (1) promote positive contribution to the local and

regional economy by creating new housing opportunities and jobs, but the 25 percent reduction in dwelling units and nonresidential square footage not realize the same benefits as the project. Likewise, would not (2) develop a mix of new residential uses near a regional job center to same degree as the proposed project or (3) attract new businesses to Patterson. This alternative would (4) facilitate buildout of the City of Patterson General Plan, (5) maintain a high quality of life through provision of schools, open spaces, and trails, and (6) facilitate the development of the South County Corridor to the same extent as the proposed project.

### 5.6 - Alternative 4—Ivy Avenue Connection Alternative

Under the Ivy Avenue Connection Alternative, both the Baldwin Master Plan and the Zacharias Master Plan would be pursued as contemplated and Ivy Avenue would provide a through connection to Ward Avenue. This alternative’s buildout potential is identical to the proposed project.

Ivy Avenue would provide a second through connection between Ward Avenue and the portion of the Zacharias Master Plan area located west of the PID Lateral M Canal. This would provide a second direct connection to SR-33 via the segment of Ivy Avenue east of Ward Avenue and improve access to the Keystone Ranch portion of the Zacharias Master Plan. The Ivy Avenue through connection was initially contemplated as the primary access point to the Zacharias Master Plan area from Ward Avenue and SR-33 until the New East-West Connector was identified as the preferred option.

Development of the Ivy Avenue Connection alternative would require the existing unpaved segment west of Ward Avenue to be upgraded to a paved, all-weather surface with curb, gutter, and sidewalk. The intersection of Ward Avenue/Ivy Avenue would be improved with a signal and turn lanes. Right-of-way acquisition would be required along Ivy Avenue for these improvements.

The Ivy Avenue Connection Alternative is summarized in Table 5-5. The purpose of the Ivy Avenue Connection Alternative is to evaluate a circulation option that was initially considered during the planning process of the Zacharias Master Plan.

**Table 5-5: Ivy Avenue Connection Alternative**

Scenario	Acres	Dwelling Units	Non-Residential Square Feet	Roadway Network
Ivy Avenue Connection Alternative	1,227	5,086	7,765,000	<ul style="list-style-type: none"> <li>East-West Connector from PID Canal to SR-33</li> <li>Ivy Avenue Through Connection from PID Canal to Ward Avenue</li> </ul>
Proposed Project	1,227	5,086	7,765,000	<ul style="list-style-type: none"> <li>East-West Connector from PID Canal to SR-33</li> <li>Ivy Avenue cul-de-sac at PID Canal with gated Emergency Vehicle Access</li> </ul>

Source: FCS 2020

## 5.6.1 - Impact Analysis

### **Aesthetics, Light, and Glare**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar changes to visual character and light and glare. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on aesthetics, light, and glare as the proposed project.

### **Agricultural Resources**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar conversion of agricultural land to non-agricultural use. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on agricultural resources as the proposed project.

### **Air Quality**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar criteria pollutant and toxic air contaminant emissions. The Ivy Avenue through connection may reduce vehicle miles traveled by providing a more direct route from certain portions of the Zacharias Master Plan to destinations in central Patterson such as the plaza; however, it would be too speculative to meaningfully quantify the reduction in emissions. Accordingly, this alternative would have similar impacts on air quality as the proposed project.

### **Biological Resources**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on biological resources. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on biological resources as the proposed project.

### **Cultural Resources**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on cultural resources. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on cultural resources as the proposed project.

### **Geology, Soils, and Seismicity**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on geology. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on geology, soils, and seismicity as the proposed project.

### **Greenhouse Gas Emissions**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar significant unavoidable greenhouse gas emissions. The Ivy Avenue through

connection may reduce vehicle miles traveled by providing a more direct route from certain portions of the Zacharias Master Plan to destinations in central Patterson such as the plaza; however, it would be too speculative to meaningfully quantify the reduction in emissions or fuel consumption. Accordingly, this alternative would have similar impacts on greenhouse gas emissions and energy as the proposed project.

### **Hazards and Hazardous Materials**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on hazards and hazardous materials. The Ivy Avenue through connection may improve emergency evacuation and response by having a permanent through route as opposed to a gated emergency vehicle access; however, it would be too speculative to meaningfully quantify the improvement in response. Accordingly, this alternative would have similar impacts on hazards and hazardous materials as the proposed project.

### **Hydrology and Water Quality**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on hydrology and water quality. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on hydrology and water quality as the proposed project.

### **Land Use**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on land use. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on land use as the proposed project.

### **Noise**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar noise impacts. The Ivy Avenue through connection may reduce vehicle miles traveled by providing a more direct route from certain portions of the Zacharias Master Plan to destinations in central Patterson such as the plaza; however, it would be too speculative to meaningfully quantify the reduction in roadway noise. Accordingly, this alternative would have similar impacts on noise as the proposed project.

### **Population and Housing**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on population and housing. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on population and housing as the proposed project.

### **Public Services and Recreation**

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on public services and recreation. The Ivy Avenue through connection would

not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on public services and recreation as the proposed project.

### Transportation

This alternative would have the same buildout potential as the proposed project and, thus, generate the same number of daily and peak hour trips. However, as shown in Table 5-6, the two through connections would better distribute trips generated within the Zacharias Master Plan area. As such, it would reduce the number of through and turn lanes needed for the East-West Connector. Furthermore, the enhanced distribution of trips may allow for shorter trips lengths, thereby reducing vehicle miles traveled; however, it would be too speculative to meaningfully quantify this potential reduction. Nevertheless, based on better trip distribution and reduced need for turn lanes, this alternative would have less impact on transportation than the proposed project.

**Table 5-6: Ivy Avenue Connection Alternative Average Daily Trip Comparison**

Scenario	Average Daily Trips Between Ward Avenue and PID Lateral M Canal	
	East-West Connector	Ivy Avenue
Ivy Avenue Connection Alternative	9,000	6,000
Proposed Project	15,500	0

Source: AMG 2020.

### Utilities and Service Systems

This alternative would have the same buildout potential as the proposed project. As such, it would result in similar impacts on utilities and service systems. The Ivy Avenue through connection would not increase the severity of any impacts. Accordingly, this alternative would have similar impacts on utilities and service systems as the proposed project.

### 5.6.2 - Conclusion

The Ivy Avenue Connection Alternative would advance all of the project objectives to the same degree as the proposed project because it would have the same buildout potential. For example, it would (1) promote positive contribution to the local and regional economy by creating new housing opportunities and jobs; (2) develop a mix of new residential uses near a regional job center to same degree as the proposed project; (3) attract new businesses to Patterson; (4) facilitate buildout of the City of Patterson General Plan; (5) maintain a high quality of life through provision of schools, open spaces, and trails; and (6) facilitate the development of the South County Corridor.

## 5.7 - Environmentally Superior Alternative

The qualitative environmental effects of each alternative in relation to the proposed project are summarized in Table 5-7

**Table 5-7: Summary of Alternatives**

Environmental Topic Area	No Project Alternative	Zacharias Master Plan Only Alternative	Reduced Density Alternative	Ivy Avenue Connection Alternative
Aesthetics, Light, and Glare	Less Impact	Less Impact	Similar Impact	Similar Impact
Agricultural Resources	Less Impact	Less Impact	Similar Impact	Similar Impact
Air Quality	Less Impact	Less Impact	Less Impact	Similar Impact
Biological Resources	Less Impact	Less Impact	Similar Impact	Similar Impact
Cultural Resources	Less Impact	Less Impact	Similar Impact	Similar Impact
Geology, Soils, and Seismicity	Less Impact	Less Impact	Similar Impact	Similar Impact
Greenhouse Gas Emissions	Less Impact	Less Impact	Less Impact	Similar Impact
Hazards and Hazardous Materials	Less Impact	Less Impact	Similar Impact	Similar Impact
Hydrology and Water Quality	Less Impact	Less Impact	Similar Impact	Similar Impact
Land Use	Less Impact	Less Impact	Similar Impact	Similar Impact
Noise	Less Impact	Less Impact	Less Impact	Similar Impact
Population and Housing	Less Impact	Less Impact	Less Impact	Similar Impact
Public Services and Recreation	Less Impact	Less Impact	Less Impact	Similar Impact
Transportation	Less Impact	Less Impact	Less Impact	Less Impact
Utilities and Service Systems	Less Impact	Less Impact	Less Impact	Similar Impact

Source: FCS 2020.

CEQA Guidelines Section 15126(e)(2) requires an EIR to identify an environmentally superior alternative. If the No Project Alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives.

The No Project Alternative avoids all of the proposed project’s significant unavoidable impacts and has less impact on all topical areas. Of the three remaining alternatives, both the Reduced Density Alternative and Ivy Avenue Connection Alternative would disturb the same acreage as the proposed project, whereas the Zacharias Master Plan Only Alternative would reduce disturbance by 66 acres. Thus, pursuant to CEQA Guidelines Section 15126(e)(2), the Zacharias Master Plan Only Alternative would be the Environmentally Superior Alternative.

## 5.8 - Alternatives Rejected from Further Consideration

### 5.8.1 - Alternative Location

CEQA Guidelines Section 15126.6(f)(2) sets forth considerations to be used in evaluating an alternative location. The section states that the “key question” is whether any of the significant effects of the project would be avoided or substantially lessened by relocating the project. The CEQA Guidelines identify the following factors that may be taken into account when addressing the feasibility of an alternative location:

- 1) Site suitability
- 2) Economic viability
- 3) Availability of infrastructure
- 4) General Plan consistency
- 5) Other plans or regulatory limitations
- 6) Jurisdictional boundaries
- 7) Whether the project applicant can reasonably acquire, control, or otherwise have access to the alternative site

The CEQA Guidelines establishes that only locations that would accomplish this objective should be considered as alternative locations for the proposed project.

FCS’ primary criteria for identifying alternative locations included: (1) providing at least 1,000 acres of developable land; and (2) being within 2 miles of a current or planned Interstate 5 interchange.

Table 5-8 assesses the feasibility of two alternative locations for the proposed Master Plans near Patterson. These sites are shown on Exhibit 5-1.

**Table 5-8: Alternative Location Feasibility Analysis**

Site	Description	Analysis
Del Puerto Canyon	<p>Approximately 1,200 acres on the west side of Interstate 5 (I-5) in unincorporated Stanislaus County along Del Puerto Canyon Road. This area is privately owned and is used for agricultural land use activities. This area is designated ‘Agriculture’ by the Stanislaus County General Plan and zoned ‘General Agriculture – 40 Acre Minimum’ by the Stanislaus County Zoning Ordinance. The City of Patterson General Plan contemplates ‘Hillside Mixed Use’ development and land use activities within this area.</p> <p>The Del Puerto Water District has proposed developing a reservoir within this area and has initiated planning efforts. The reservoir is contemplated to flood the lower part of the</p>	<p><b>Not Feasible:</b> This area is poorly suited to support 5,000 dwelling units and 7.7 million square feet of non-residential uses. It is non-contiguous to the existing Patterson city limits and is not served with urban infrastructure or services. The extension of infrastructure into this area would be considered ‘growth inducing’ and would leapfrog areas of Patterson that are not yet developed.</p> <p>Furthermore, due to the Del Puerto Water District’s ongoing reservoir planning efforts, developing a master planned community within this area would be contrary to sound planning principles.</p>

Site	Description	Analysis
	canyon near I-5, necessitating the relocation of Del Puerto Canyon Road.	
Naval Air Station Crows Landing	Approximately 1,528 acres consisting of a former military airfield approximately 5 miles south of Patterson in unincorporated Stanislaus County. The County of Stanislaus owns the facility and has pursued planning efforts to redevelop it as an airport and business park. This area is designated 'Agriculture' by the Stanislaus County General Plan and zoned 'General Agriculture – 40 Acre Minimum' by the Stanislaus County Zoning Ordinance. This area is outside the City of Patterson General Plan's Planning Area.	<b>Not Feasible:</b> The County envisions aviation, light industrial, logistics, and business park uses on this site. It is non-contiguous to the existing Patterson city limits and is not served with urban infrastructure or services. The extension of infrastructure into this area would be considered 'growth inducing.' Furthermore, this site would not be desirable for 5,000 dwelling units due to the planned general aviation airport at this site. Finally, because this site is outside City of Patterson General Plan's Planning Area, the City would need to undertake a General Plan Update to include it, an expensive and time-consuming process.
Source: FCS 2020.		

### 5.8.2 - Baldwin Master Plan Only Alternative

The Baldwin Master Plan Only Alternative was initially considered. Under this scenario, the 68.7-acre Baldwin Master Plan area would be annexed into the City of Patterson and developed as 305 single-family dwelling units with 5 acres of parks, trails, and stormwater basins, while the Zacharias Master Plan would not be pursued.

The Baldwin Master Plan Only Alternative was rejected from further consideration because it must be paired with the Zacharias Master Plan (or other Master Plan with non-residential uses) in order to work. As a low-density residential development at the southern edge of the city limits, it would be fiscal net negative for the City of Patterson because there is no commercial or industrial component. Furthermore, it is non-contiguous to existing residential development, which increases service delivery costs. Thus, the Baldwin Master Plan in isolation from another Master Plan that includes a significant non-residential component would not be viable.

### 5.8.3 - Ranchette Triangle Annexation Alternative

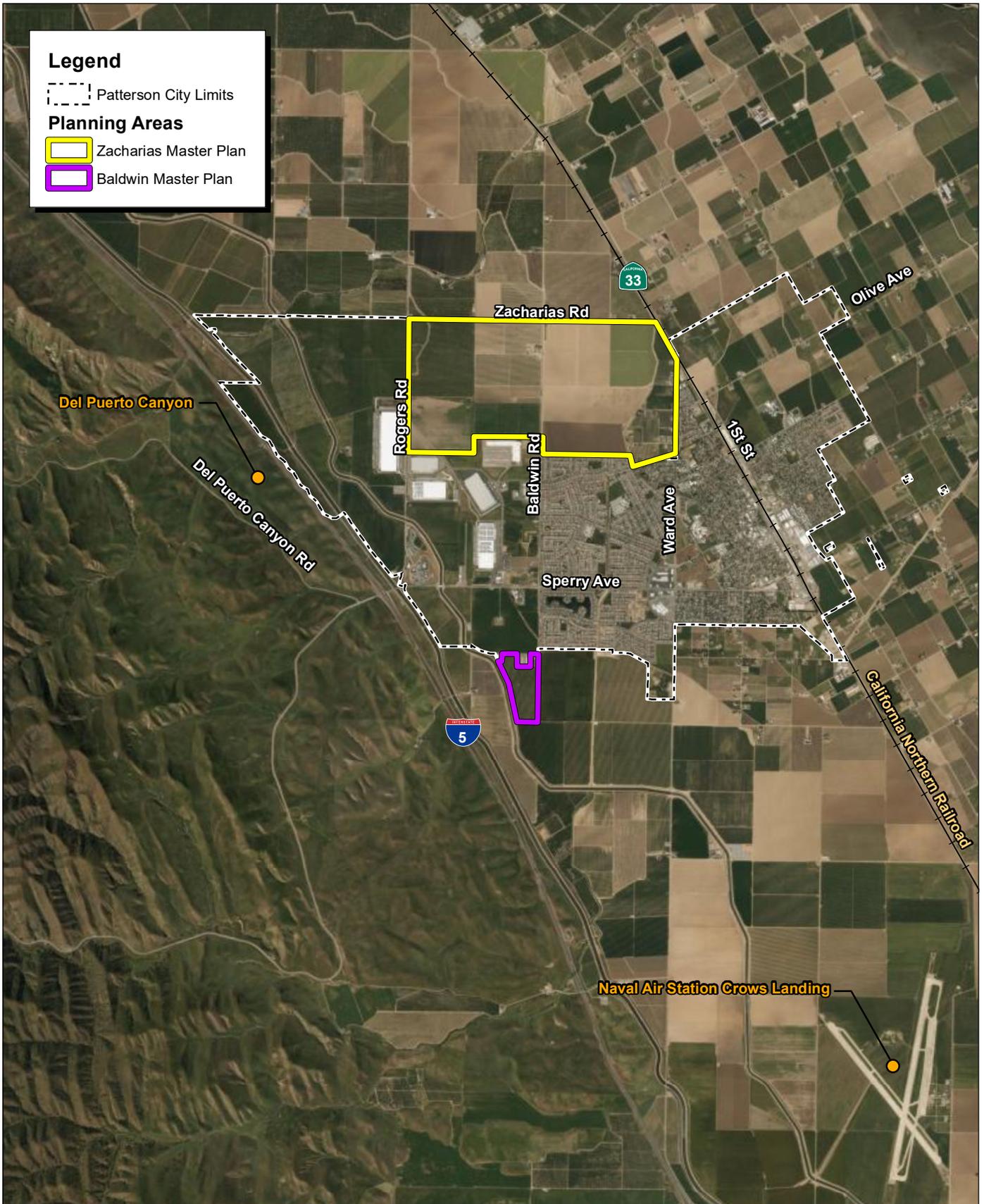
An alternative consisting of annexing and developing only the 143.7-acre Ranchette Triangle was initially considered. The Ranchette Triangle is the only portion of the Zacharias Master Plan that is within the Patterson Sphere of Influence. As such, is considered to be within the 'probable future' boundaries of the City of Patterson and annexation would face a lower threshold of review from Stanislaus Local Agency Formation Commission than the balance of the Master Plan area.

This alternative would consist of developing the Ranchette Triangle at 3.0 dwelling units per acre, which would yield 431 single-family dwelling units. Vehicular access would be provided from Ward Avenue. Both Ivy Avenue and Rose Avenue would be upgraded to City standards.

The Ranchette Triangle Annexation Alternative was rejected from further consideration for the following reasons:

- Lack of property owner interest
- Low density residential at 3.0 dwelling units/acre would be a fiscal net negative for the City of Patterson and not achieve highest-and-best use of land
- Planning only the Ranchette Triangle preclude comprehensive community planning with the remainder of the Zacharias Master Plan area (e.g., circulation)
- Developing exclusively residential uses within the Ranchette Triangle would preclude opportunities for needed employment-creating, fiscal net positive land uses at the SR-33/Ward Avenue entry way to Patterson

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Source: ESRI Aerial Imagery.

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## Exhibit 5-1 Alternative Locations

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## SECTION 6: OTHER CEQA CONSIDERATIONS

### 6.1 - Significant Unavoidable Impacts

California Environmental Quality Act (CEQA) Guidelines Section 15126.2(a)(b) requires an Environmental Impact Report (EIR) to identify and focus on the significant environmental effects of the proposed project, including effects that cannot be avoided if the proposed project were implemented.

This section describes significant impacts, including those that can be mitigated but not reduced to a level of less than significant. Where there are impacts that cannot be alleviated without imposing a project alternative, their implications, and the reason why the project is being proposed, notwithstanding their effect, is described. With implementation of the proposed Master Plans, the following significant avoidable impacts that cannot be avoided would occur:

- **Important Farmland:** Buildout of the proposed Master Plans would convert 1,246 acres of Important Farmland to non-agricultural use. Mitigation is proposed consisting of farmland preservation elsewhere in Stanislaus County; however, preservation would still result in the net loss of farmland. Therefore, the impact is significant and unavoidable.
- **Consistency With Air Quality Plan:** Buildout of the proposed Master Plans would result in ozone precursor and particulate matter emissions that would exceed adopted thresholds and, therefore, would be inconsistent with San Joaquin Valley Air Pollution Control District's air quality plan. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Cumulative Criteria Pollutant Emissions Impacts:** Buildout of the proposed Master Plans would result in ozone precursor and particulate matter emissions that would exceed adopted thresholds and, therefore, have a cumulatively considerable contribution to regional air pollution. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Greenhouse Gas Emissions Generation:** Buildout of the proposed Master Plans would result in greenhouse gas emissions that would exceed adopted thresholds. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Consistency With Greenhouse Gas Emissions Reduction Plan:** Buildout of the proposed Master Plans would result in greenhouse gas emissions that would exceed adopted thresholds and, therefore, would be inconsistent with State greenhouse gas reduction strategies. Mitigation is proposed requiring air emissions reduction measures; it would not reduce emissions to acceptable levels. Therefore, the impact is significant and unavoidable.
- **Existing Plus Approved Plus Project Traffic Conditions:** The proposed Master Plans would contribute new vehicle trips to intersections, roadway segments, and freeway segments that would operate at unacceptable levels under Existing Plus Approved Plus Project Traffic

Conditions. Mitigation is proposed consisting of improvements to affected facilities; however, in certain cases, it would not restore operations to acceptable levels or is considered uncertain because the facilities are outside the jurisdictional control or the City of Patterson. Therefore, the impact is significant and unavoidable.

- **2040 Cumulative Plus Project Traffic Conditions:** The proposed Master Plans would contribute new vehicle trips to intersections, roadway segments, and freeway segments that would operate at unacceptable levels under 2040 Cumulative Plus Project Traffic Conditions. Mitigation is proposed consisting of improvements to affected facilities; however, in certain cases, it would not restore operations to acceptable levels or is considered uncertain because the facilities are outside the jurisdictional control or the City of Patterson. Therefore, the impact is significant and unavoidable.

## 6.2 - Growth-Inducing Impacts

There are two types of growth-inducing impacts that a project may have: direct and indirect. To assess the potential for growth-inducing impacts, the project's characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated (CEQA Guidelines § 15126.2(e)).

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community by directly inducing population growth, or by leading to the construction of additional developments in the same area. Also included in this category are projects that remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they facilitate and serve. Projects that physically remove obstacles to growth, or projects that indirectly induce growth may provide a catalyst for future unrelated development in an area such as a new residential community that requires additional commercial uses to support residents.

Development of new area has potential to attract new residents and employment opportunities as buildout progresses, based on prior growth patterns and economic development goals within the City of Patterson. Any additional expansion or population increase caused by the buildout, not anticipated by the Master Plans, would have to undergo further planning and environmental review at the time the City initiates any such process.

At buildout, both Master Plans would support an estimated 19,988 new residents and 8,670 employees on existing agricultural land that would be annexed into the City of Patterson. Additionally, both Master Plans contemplate a network of urban infrastructure including roads and utilities. Each Master Plan is discussed separately.

### **Baldwin Master Plan**

The Baldwin Master Plan would support a population of 1,199 at buildout. Because of its small size and single use, the Baldwin Master Plan would buildout over a period of 5 years. When compared to the historical population growth totals shown in Table 3.12-2, the Baldwin Master Plan would be in line with past growth periods.

The City of Patterson General Plan contemplates a buildout population of 66,673 persons. Given that the City's existing population (23,764) is roughly half of the projected buildout population, the Baldwin Master Plan would be within the General Plan's growth projections.

The Baldwin Master Plan would include the extension of roads, storm drainage, water, sewer, electricity, and natural gas services to the Master Plan area. These connections would occur at Baldwin Road or Sperry Avenue. No off-site infrastructure connections would occur through areas unserved by urban infrastructure. As such, the proposed Master Plan would not result in growth inducement.

### ***Zacharias Master Plan***

The Zacharias Master Plan would support a population of 18,789 and 8,670 employees at buildout. Because of its size and scale, the Zacharias Master Plan would buildout over a period of 20 years. When broken down into 5-year increments, this averages to 4,695 additional persons and 2,168 additional employees every 5 years. When compared to the historical population growth totals shown in Table 3.12-2, the Zacharias Master Plan would be in line with past growth periods.

The City of Patterson General Plan contemplates a buildout population of 66,673 persons and 32,196 employees. Given that the City's existing population (23,764) is roughly half of the projected buildout population and existing employment (9,500) is roughly a third of the projected buildout employment, the Baldwin Master Plan would be within the General Plan's growth projections.

The Zacharias Master Plan would include the extension of roads, storm drainage, water, sewer, electricity, and natural gas services to the Master Plan area. These connections would occur at Keystone Pacific Parkway, Baldwin Road, and Ward Avenue. No off-site infrastructure connections would occur through areas unserved by urban infrastructure. As such, the proposed Master Plan would not result in growth inducement.

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## SECTION 7: EFFECTS FOUND NOT TO BE SIGNIFICANT

### 7.1 - Introduction

This section is based on the Notice of Preparation (NOP), dated December 21, 2018, and contained in Appendix A of this Environmental Impact Report (EIR). The NOP was prepared to identify the potentially significant effects of the proposed project and was circulated for public review between December 21, 2018, and January 22, 2019. In the course of this evaluation, certain impacts were found to be less than significant because the proposed project's characteristics would not create such impacts. This section provides a brief description of effects found not to be significant or less than significant, based on the NOP comments or more detailed analysis conducted as part of the EIR preparation process. Note that a number of impacts that are found to be less than significant are addressed in the various EIR topical sections (Sections 3.1 through 3.16) to provide more comprehensive discussion of why impacts are less than significant, in order to better inform decision makers and the general public.

### 7.2 - Effects Found not to be Significant

#### 7.2.1 - Geology, Soils, and Seismicity

##### Septic or Alternative Wastewater Disposal Systems

The Master Plan area currently contains rural residences that use septic disposal systems. As the Master Plan area buildouts, the existing septic disposal systems would be abandoned or removed in accordance with County requirements. The Master Plan uses would be served with wastewater collection and treatment provided by the City of Patterson. As such, buildout of the Master Plan would not increase use of septic or alternative wastewater disposal systems. No impact would occur.

#### 7.2.2 - Hazards and Hazardous Materials

##### Airports

The nearest active airport to the Baldwin / Zacharias Master Plans is Modesto City-County Airport located 14 miles to the northeast. This distance precludes the possibility of the Master Plans exposing persons residing or working in the project vicinity to aviation noise associated with Modesto City-County Airport.

The currently inactive Crows Landing airfield is located 3.2 miles southeast of the Baldwin Master Plan area and 4.4 miles of the Zacharias Master Plan area. The County of Stanislaus is planning to reactivate the airfield as a general aviation facility. The planned Crows Landing Airport is sufficiently far enough away from the Master Plan areas that aviation activities would not expose persons to aviation safety hazards. No impact would occur.

## 7.2.3 - Hydrology and Water Quality

### Levee or Dam Failure

The California Aqueduct and Delta-Mendota Canal are protected with levees. Both facilities are concrete-lined and buttressed by earthen embankments. These characteristics make it highly unlikely that levee failure would occur. No impacts would occur.

The dam failure inundation area for the San Luis Reservoir encompasses the area within the eastern portion of Patterson, between Elm Avenue and the San Joaquin River. Both Master Plan areas are located approximately 3 miles to the west of this area. This condition precludes the possibility of the project site being inundated by floodwaters as a result of dam failure. No impacts would occur.

### Seiches, Tsunamis, or Mudflows

There are no inland bodies of water near the project site, a condition that precludes the possibility of seiche inundation. The project is approximately 70 miles from the Pacific Ocean, a condition that precludes the possibility of tsunami inundation. The project site is not located in a volcanically active area or adjacent to steep slopes, a condition that precludes mudflow inundation. No impacts would occur.

## 7.2.4 - Noise

### Aviation Noise

The nearest active airport to the Baldwin / Zacharias Master Plans is Modesto City-County Airport located 14 miles to the northeast. This distance precludes the possibility of the Master Plans exposing persons residing or working in the project vicinity to aviation noise associated with Modesto City-County Airport.

The currently inactive Crows Landing airfield is located 3.2 miles southeast of the Baldwin Master Plan area and 4.4 miles of the Zacharias Master Plan area. The County of Stanislaus is planning to reactivate the airfield as a general aviation facility. Aviation noise contours published in the Crows Landing Industrial Business Park Specific Plan Draft EIR indicate that the Master Plan area is outside the 55 dBA CNEL aviation noise contour. Thus, the Master Plans would not expose persons residing or working in the project vicinity to aviation noise associated with the planned Crows Landing Airport.

## 7.2.5 - Wildfire

### Emergency Response or Evacuation

The Master Plan areas contains agricultural land and is adjacent to the Patterson city limits. The Master Plan areas are not with a State responsibility area or classified as a very high fire hazard severity zone. The closest area susceptible to wildfires is more than 1 mile to the west on the opposite side of Interstate 5. As such, the Master Plan areas are not susceptible to wildfires. Regardless, the Master Plans contemplate a roadway network would have multiple connections to roadways such as Rogers Road, Zacharias Road (future South County Corridor), Baldwin Road, and

Ward Avenue. As such, adequate emergency response and evacuation routes would be available in the event of an emergency. No impact would occur.

### **Exposure to Wildfire**

The Master Plan areas contain agricultural land and is adjacent to the Patterson city limits. The Master Plan areas are not with a State responsibility area or classified as a very high fire hazard severity zone. The closest area susceptible to wildfires is more than 1 mile to the west on the opposite side of Interstate 5. As such, the Master Plan area are not susceptible to wildfires. Thus, persons or structures would not be exposed to wildfire hazards. No impact would occur.

### **Fire Infrastructure**

The Master Plan areas contain agricultural land and is adjacent to the Patterson city limits. The Master Plan areas are not with a State responsibility area or classified as a very high fire hazard severity zone. The closest area susceptible to wildfires is more than 1 mile to the west on the opposite side of Interstate 5. As such, the Master Plan areas are not susceptible to wildfires. Thus, no wildfire suppression infrastructure would be required. No impact would occur.

### **Post-Fire Flooding or Landslides**

The Master Plan areas contain agricultural land and is adjacent to the Patterson city limits. The Master Plan areas are not with a State responsibility area or classified as a very high fire hazard severity zone. The closest area susceptible to wildfires is more than 1 mile to the west on the opposite side of Interstate 5. As such, the Master Plan areas are not susceptible to wildfires and, thus, it would not be susceptible to post-fire flooding or landslides. No impact would occur.

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## SECTION 8: PERSONS AND ORGANIZATIONS CONSULTED/LIST OF PREPARERS

### 8.1 - Lead Agency

#### 8.1.1 - City of Patterson

##### Community Development Department

Community Development Director ..... David James, AICP  
City Planner ..... Joel Andrews

##### City Manager’s Office

City Manager ..... Ken Irwin

##### Public Works Department

Public Works Director ..... Mike Willet  
Director of Engineering, Building, and Capital Projects / City Engineer ..... Fernando Ulloa, PE

#### 8.1.2 - Public Agencies

##### Federal Agencies

###### *San Luis & Delta-Mendota Water Authority*

Assistant Executive Director ..... Frances Mizuno

##### State Agencies

###### *Central Valley Regional Water Quality Control Board*

Environmental Scientist ..... Jordan Hensley

###### *Department of Conservation*

Conservation Program Support Supervisor ..... Monique Wilber

###### *Department of Transportation, District 10*

Intergovernmental Review / CEQA ..... Tom Dumas

###### *Governor’s Office of Planning and Research, State Clearinghouse*

Director ..... Scott Morgan

###### *Native American Heritage Commission*

Staff Services Analyst ..... Sharaya Souza

###### *Public Utilities Commission*

Utilities Engineer ..... Matt Cervantes

## Local Agencies

### **County of Stanislaus**

Assistant Executive Officer ..... Keith Boggs  
Senior Management Consultant ..... Patrick Cavanah

### **Del Puerto Health Care District**

J.B. Anderson Land Use Planning ..... John Anderson

### **Patterson Irrigation District**

Herum Crabtree Suntang ..... Jeanne Zolezzi

### **Stanislaus Local Agency Formation Commission**

Executive Officer ..... Sara Lytle-Pinhey

### **Turlock Irrigation District**

Supervising Engineering Technician, Civil ..... Todd Troglin

### **West Stanislaus Fire Protection District**

Law Office of William D. Ross..... William Ross

### **West Stanislaus Irrigation District**

Herum Crabtree Suntang ..... Jeanne Zolezzi

## 8.1.3 - Private Parties and Organizations

### **Jack Schreder Associates**

President ..... Jack Schreder

### **Sarasqueta Properties**

President ..... Phil Sarasqueta

### **Private Citizens**

Henry Gnesa  
Jill Gnesa  
Donald Hess  
Barabara Vega

## 8.2 - List of Preparers

### 8.2.1 - Lead Agency

#### **Community Development Department**

Community Development Director ..... David James, AICP  
City Planner ..... Joel Andrews

**City Manager’s Office**

City Manager ..... Ken Irwin

**Public Works Department**

Public Works Director ..... Mike Willet  
Director of Engineering, Building, and Capital Projects / City Engineer ..... Fernando Ulloa, PE

**8.2.2 - Lead Agency’s Environmental Consultant**

**FirstCarbon Solutions**

Project Director ..... Jason Brandman  
Project Director ..... Mary Bean  
Project Manager ..... Grant Gruber  
Senior Noise Analyst ..... Phil Ault  
Senior Project Archaeologist ..... Dana DePietro, PhD  
Senior Biologist ..... Kevin Derby  
Biologist ..... Alec Villanueva  
Senior Editor ..... Susie Harris  
Word Processor ..... Melissa Ramirez  
GIS/Graphics ..... Karlee McCracken  
Reprographics ..... Octavio Perez

**8.2.3 - Lead Agency’s Technical Subconsultants**

**Advanced Mobility Group**

Principal ..... Christopher Thnay, PE

**Balance Hydrologics**

Principal Engineer ..... Ed Ballman, PE  
Geomorphologist/Hydrologist ..... Anne Senter, PhD  
Hydrologist ..... Scott Brown

**Mitchell Air Quality Consulting**

Principal ..... Dave Mitchell

**8.2.4 - Lead Agency’s Planning Consultant**

**MIG**

Contract Planner ..... Tricia Stevens, AICP  
Contract Planner ..... Scott Davidson

## 8.2.5 - Lead Agency’s Legal Counsel

### Churchwell White LLP

Partner ..... Barbara Brenner

## 8.2.6 - Master Plan Team

### Property Owner Representatives

Lakeside Hills ..... Keith Fichtner

Baldwin Ranch / Zacharias Ranch ..... Joe Hollowell

TFP ..... Dave Romano

Keystone Ranch ..... Keith Schneider

### GDR Engineering, Inc.

Principal ..... Max Garcia, PE

Assistant Planner ..... Josh Janz, PE

Civil Engineer ..... Jason Chapman, PE

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